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THE WESTERN POMOLOGIST.

HORTICULTURE FLORICULTURE.

Vol. I. DES MOINES JANUARY, 1870. No. 1.

WESTERN POMOLOGIST.

Conducted by MARK MILLER,
Assisted by J. A. NASH.

TERMS:

Single Copy ..... $ 1.00
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With an extra copy to the agent, without regard to size of club.

QUERIES.—We invite questions from our readers upon subjects pertaining to Pomology, upon which information may be desired.—Little items of experience are the spice of such a journal as we propose to make this.

Meeting of the Illinois State Horticultural Society,

It was our good fortune to be present at the four days meeting of the Illinois State Horticultural Society, which commenced its fourteenth annual session at Ottawa on the 14th ult. From every point of view it was a meeting of which the Society, and the people of the Empire State of the West may well be proud. There was represented in that venerable body the wisdom and experience of the Horticulturists of Illinois. The attendance was large, and the character of the men impressed us much—men who have grown gray in developing the vast resources of the West, very many of these men began when their State was new, and much of their work was experimenting. Time, money, thought, and experiments oft repeated were necessary to determine the adaptability of the various sorts and varieties of fruit to their soil and climate, and nobly have they succeeded. Many of them have been long and intimately identified with the Pomology of the State, and it is largely owing to their labors that portions of Illinois are now laden with fruit. Their long and well.tried experience is now the property of the State, and of the West. They have labored long and patiently and others are entering into their labors.

All honor be to the old pioneer fruit growers of Illinois, many of whom, for the first time, we had the pleasure of taking by the hand. They have done a noble work for themselves and for posterity.

On the arrival of members they were taken in charge and snugly stowed away under the generous hospitality of the citizens.

We there met, by far, the largest body of professional fruit growers that it has ever been our pleasure of seeing in the Norhwest. In fact, without any disparagement to the Illinois State Horticultural Society, the meeting might not inappropriately be classed as a Western fruit growers' meeting; for there were in attendance representatives from all the adjoining States, and also from some of the Eastern States. The treasurer's report shows the financial affairs of the society in a prosperous condition. It has an annual appropriation from the State of $2000, from which $1000 to $1500 is expended upon the annual volume of its transactions. The volume for 1869, contains about 350 pages of matter in small type, and is every way worthy the society it represents.

The collection of fruits was not very extensive, for the reason that it was presented for inspection and comparison only, and not for competition. Messrs. Ellwanger and Barry had upon the table (*not* "for an advertisement") a very large collection of pears considering the season. It numbered some thirty to forty varieties of winter pears, and which afforded a seasonable opportunity to visitors to inspect everything in the line of winter pears, and to make up their lists understandingly for cultivation. Little can be learned of the relative merits of winter pears at our fall meetings beyond mere size, as at that time they are not in season.

The assortment of apples was fair. Among them we found two or three seedlings that promise well, one of which, called the "Monto Bello," was in season, an illustration and description of which will be found upon another page.

Mr. M. T. Nelson, of Wilmington, handed us a seedling sweet apple, a winter fruit. It has some of the striking characteristics of Tallman's Sweet - a line, or rather two, on opposite sides, running from the stem toward the apex, also furrowed; color green, with a faint blush on one side. It is represented by Mr. N. as a long keeper, and of excellent flavor. Judge Brown, of Alton, handed us a specimen of Spark's Late, a winter fruit, very attractive and highly esteemed by the Judge. When in season, we shall try these, to us new varieties, and give to them due attention by way of illustration and deersiption.

President.—W. C. Flagg, Alton.

Vice-Presidents—1st Dist., ¼ L, Woodward, Marengo; 2d Dist., Sam'l Edwards, La Moille; 3rd Dist., A. C Howard, Moscow; 4th Dist., Tyra Montgomery, Mattoon; 5th Dist., J. M. Fletcher Centralia; 6th Dist., H. J. Hyde, Godfrey; 7th Dist., A. M, Brown, Villa Ridge;

Secretary—O. B. Galusha.

Asst. Sec'y—H. J. Dunlap, Champaign.

Treasnrer.—J. H. Huggins.

Galesburg was selected for holding the next annual meeting.

In our next issue we shall speak of the sayings and doings of the meeting. On another page will be found the annual address of President McWhorter.

Plant Young Trees.

R. W. Furnas, says in the *Nebraska Advertiser*: "We not only advise but urge the planting of young, small trees, especially if they are brought from a distance. We know that most persons have an idea that the older and larger a fruit tree is, the sooner they will get fruit. This is a great error, and can only possibly be true when trees are very carefully taken up and put in the around immediately. As a rule, however, when trees are sent to any distance, a one-year apple tree is preferable to a three-year old one. They cost less—ten cents instead of thirty—less for transportation, less work to handle them, less work to plant, are surer to live, have better and more roots according to their size, are more easily adapted to a new soil, the tops are more easily trained, and in six years they are ahead of your three-year old trees in all respects. In our opinion you will get a bearing orchard sooner with one-year old trees than with three year or older trees."

Such has long been the teaching and practice of the best nurserymen; but many think they know better than those who have had experience, and so plant large trees.

They are, however, generally persons who ridicule what they term book farming, and they do not read agricultural papers, and indeed we have but little hope that they will ever abandon their error.

For the Western Pomologist.

An Important Step.

MARK MILLER, ESQ.:—*Dear Sir:* Nothing has given a more beautiful close to the old year, or a more gratifying dawn to the new year, than the information received recently that you had determined to begin the publication of a strictly Western and Middle States Horticultural Monthly. It is a step in the right direction. We of the West and Middle States have long felt the need of such a journal as you propose to give us—a cheap, *thoroughly practical*, reliable, Horticultural paper, adapted to the soil, climate, necessities and characteristics of our people. Such a paper cannot be successfully conducted by other than a man who fully understands our wants; and who, by long years of practical experience, knows best what is required to please the people, and to insure us that success, in all that pertains to our rural life, which we can hope to attain. In you, we believe, are blended that practical experience, *common sense*, and energy, which alone will triumph over all obstacles, and enable you, by our individual aid, to establish upon an enduring basis, a first class paper of the kind above alluded to. We cordially endorse many of our American Rural publications which emanate from the North and the South; but still we must confess that they do *not* supply *us* with that information suited to our soil and climate and people. To the people of their respective sections, they give all that is required, but our climate, soil and manners are as different from theirs as the soil, climate, and manners of one continent from another. Would a Southern planter seek information as to the culture of cotton and sugar and rice, from a farmer in the North? or, would a Northern farmer attempt to grow those staples in his own climate? Surely not. Would a farmer on the deep, rich prairies of the West, incur the expense and trouble of buying and spreading any of the Northman's "commercial manures," such as Rawbone, Phosphates, etc.? Surely not. Would a Western Horticulturist, or one living in any of the Middle States, plant an orchard, or a vineyard, or a small fruit garden, of like varieties adapted to the Northern or the Southern States, and would his mode of cultivation to insure success correspond with the mode found best adapted to those sections of our country? Every sensible man will answer, certainly not. Then, if not, what is the rational inference? Simply this: We must look for correct knowledge on these and kindred topics, from *home sources*. The great importance of fruit and fruit tree culture is being more and more felt every year. Our orchard and garden area is widening year by year. Our States and Territories are becoming more densely peopled, and in common with all other kinds of industry and thrift, we, who are bound to earth by the beauties of all that tend to advance the best interests of rural life—its orchards and gardens and vineyards—must bestir ourselves, and go onward to a full development of all the hidden and revealed charms and riches of Horticulture. Then, men of the Western and Middle States, let us, by "*pen and purse*," put our shoulders to the wheel of the car that bears the "WESTERN POMOLOGIST," and aid Mr. Miller in his laudable undertaking. H. T. H.

Stanford, Kentucky, Jan. 1st, 1870.

For the Western Pomologist.

Kansas State Horticultural Society.

Some time during the winter of 1866, an article appeared in the *Kansas Farmer* under the head of Kansas Pomology, setting forth a plan of organizing a Society by correspondence. The Rev. John S. Brown, then editor of the *Farmer*, not only gave the use of his paper, but volunteered to act as Secretary. The effort proved successful, and a prompt response was made by about twenty names. The Secretary then called an election of officers; received the ballots through the mail, and announced the result in the following April number.

The officers elected, performed their duties promptly, and while a lively correspondence was kept up through the mail and papers, a desire soon manifested itself to meet and exchange personal views. The desire was soon gratified by the announcement of a meeting to be held at the city of Lawrence the following winter.

They met, and many for the first time beheld the faces of brother pomologists with whom they had become familiar through friendly chats on paper.

From this beginning there was no retrograde, but a steady and healthy growth. The press of the State took up the cause and assisted it all in their power.

At the annual meeting of 1868, the subject of attending the American Pomological Convention at Philadelphia, was discussed. The great distance and an empty treasury seemed to preclude the possibility. However, it was decided to appoint a committee, and trust to luck. One of the first acts of the committee was to ask the Legislature for an appropriation of five hundred dollars for the purpose of collecting and forwarding fruit to Philadelphia.

The amount was cheerfully granted, the fruit was carefully selected and safely transported, and so impressed were the officers of the Pennsylvania Horticultual Society with the beauty and excellence of the display, that they awarded the *gold medal* to Kansas.

The Kansas Horticultural Society held its third annual meeting at Ottawa, Franklin county, on the 14th, 15th and 16th of Dec., 1869, C. H. Topping, of Ottawa, delivered the welcoming address, and President Wm. Tanner, of Leavenworth, delivered the annual address, from which I have gathered this brief account of the Society given above.

Among the proceedings the first day, Dr. William M. Howsley, on behalf of the committee appointed to collect and exhibit fruit at the National Pomological Congress at Philadelphia, presented the gold medal, awarded the Society by the Pennsylvania State Horticultural Society, with the following remarks:

Now, Sir, the last duty that devolves on your committee is to present to this Society this medal, (waving it in his hand and opening both sides to the crowd,) which was awarded to the State Horticultural Society. Take it, Sir, and cherish it as a proud trophy of our victory. Sir, when we look on this rich treasure, it should make our hearts palpitate with pride and pleasure that we are citizens of Kansas.

To which President Tanner responded as follows:

Gentlemen of the Committee:

Receiving this gold medal from your hands is the proudest event in the history of this Society. We accept it not in a spirit of exultation, but with feelings of deep gratitude towards those who gave it, and assure them that we fully appreciate its great value, well knowing that an example expressive of so much generosity is very rarely, if, indeed, at all known in the annals of pomology. From the Pennsylvania Horticultural Society we accept this beautiful emblem, which will be cherished in remembrance of them as long as this Society lives, and to them we tender our sincere thanks.

On motion of Dr. Topping the following greeting to the Illinois State Horticultural Society was sent by telegraph:

Ottawa, 10 o'clock A. M., Dec. 14.

The Kansas State Horticultural Society in session, sends words of greeting to the Illinois State Horticultural Society at Ottawa, Illinois. WM. TANNER, *Pres.*

During the second day a committee of three was appointed to examine and decide upon samples of apples present, called by the different names of McAffees, Nonsuch, Loge, Striped Pearmain, Missouri, Superior, Zeek, Wyandotte, Gray Apple, Wine, Starr Apple, Indian Apple, &c.

The committee were Dr. J. Warder, of Ohio; Prof. S. T. Kelsey, of Ottawa, and Dr. J. Stayman, of Leavenworth; who, after hearing the evidence and examining the fruit, decided that they could see no difference, and believed them to be one and the same species of apple.

The apple list was then taken up and discussed at length—the habits of the different kinds considered—the adaptation of each to our soil and climate, and the following list decided upon as those likely to be most successfully cultivated:

SUMMER APPLES.

* Red June.	* Cooper's Early White.
* Early Harvest.	* Red Astrichan.

AUTUMN APPLES.

** Maiden's Blush.	* Fameuse.
* Lowell.	* Bailey's Sweet.
* Fall Wine.	

WINTER APPLES.

* Hay's Wine.	** Wine Sap.
* Raule's Jannette.	* Ben Davis.
* Striped Pearmain.	* Roman Stem.
* Rome Beauty.	* Willow Twig.
* Missouri Pippin.	* Gilpin.
* Sweet Romanite.	— Kansas Keeper.
— W. W. Pearmain.	* Smith's Cider.

One * indicates worthy of general cultivation and profitable; adapted to all parts of Kansas, as far as tried.

** indicate but very few objections to the fruit, and very highly recommended.

A — indicates the fruit is simply on trial; not well tested.

After the discussion on apples, several essays were read on atmospheric influence, by Dr. W. Howsley, Mr. A. H. Grisea, and C. B. Lines; which were favorably seconded, with considerable discussion. The one delivered by Dr. Howsley differed with all botanists. This essay is soon to be published, and I will send you extracts from it in my next letter.

During the third day the subject of the pear was similarly discussed, with the following result:

Those with one star are generally considered worthy of cultivation; two stars have some additional quality, or more generally approved; a dash signifies that these are only on trial; s for standard and d for dwarf.

PEAR LIST.

* Bartlet, s.	* Swan's Orange, s
* Seckle, s.	* Duchesse d' Angouleme, d
* Flemish Beauty, s	— Howell, s and d
* Doyenne d' Ete, s	— Beurre Easter, s
* White Doyenne, s	— Glout Morceau, d
— Rostiezer, s	— Sheldon, s
* Tyson, s	* Lawrence, d
** Louise Bonne de Jersey, d	† Beurre Diel, d & s

The subject of grapes was then taken up and fully discussed, and resulted in the following list:

FOR GENERAL CULTIVATION.

Concord—market and wine.
Hartford Prolific—market.
Ives Seedling—market and wine.

ON TRIAL—WHICH PROVES WELL.

Martha White—market and wine.
Iona—market and wine.
Delaware—market and wine.

GENERAL CULTIVATION FOR WINE ONLY.

Clinton, Newton, Virginia and Cynthiana.

The election of officers for the year 1870 resulted in the unanimous re-election of the old ones—as follows:

Wm. Tanner, President, Leavenworth; C. B. Lines, Vice-President, Wabaunsee; S. T. Kelsey, Treasurer, Ottawa; G. C. Brackett, Secretary, Lawrence.

The next annual meeting of the Society will be held at Manhattan, Riley Co., on the first Tuesday of December, 1870.

RAYMAND.

Leavenworth, Kan., Dec. 24, 1869.

For the Western Pomologist.

Comfort and Luxury of Fruit.

How many of the lovers of fruit here in the North, really appreciate our comforts and luxuries in this respect; and think, if we only had the delicious fruits of the tropics.

Now let us draw a comparison. Here we begin with the strawberry, which, in my opinion, is not surpassed by any other, either of a temperate or tropical clime, in point of deliciousness. Next, raspberries, the value of which our people are only beginning to appreciate. Currants, gooseberries, cherries, and blackberries come in here and succeed others; while before they are near gone we have plums, (where they can grow them), apples, pears and peaches. We have melons, cantelopes, and grapes.

Some of these we can keep until winter, while the pear and apple last through it; the latter, if properly kept, and of the best keepers, will be in use until the first strawberries of the following season are ripe. For a long time I made it a rule to try and bring a dish of old apples and one of new strawberries to the table together.

Of all the fruits that kind providence has furnished us with, none to my taste equal in every respect, a first-rate pear. Others say a peach; and how little behind them is an excellent apple.

I have eaten the orange ripe from the tree, and they are delicious 'tis true. The fig dropped into my hand, as soft as an egg without the outer shell; but on eating could not find anything at all sprightly, only a dull dead sweet. The pine-apple, guave, and a number of others of the hot climates have I eaten, but perhaps not in their prime.

Let us then grow the best varieties of each kind of fruit that flourishes here, and give them the proper attention, and thank our stars that our lot has been cast in such a glorious fruit country.

I will here take the responsibility to say, that the growing of fruit has been, thus far, only half done, and that we will ere long see things quite different from what they have been; that is, less poor fruit offered for sale, and better taken care of. To accomplish this let us unite in endeavoring to diffuse knowledge through the "*Pomologist.*"

That the new sheet shall flourish and do much towards accomplishing the above, is the wish of your humble correspondent.

SAMUEL MILLER.

Bluffton, Mo., Dec. 20, 1869.

Pomological Rules.

The following are the rules by which the American Pomological Society are governed in the examination of new seedling fruits. Every Horticultural Society in the country should make these rules a part of its regulations. No new fruit should be introduced to the public until it has been tested in more localities than one, and also submitted to the criticism of one or more State Horticultural Societies, or to the American Pomological Society:

1. No new seedling fruit shall be entitled to the recommendation of this Society until its qualities shall be ascertained by at least five years' experience in more than one locality, and which is not at least equal to any similar variety of the first rank already known; or which, if only of second-rate flavor, is superior in vigor, hardiness, productiveness, or other important quality or characteristics.

2. No new fruit shall be considered as named until it has been accurately described by some person or committee known to be conversant with existing varieties, and such description shall have been published in at least one horticultural or agricultural journal or some pomological work of acknowledged standard character.

3. The originator, or he who first makes known a new variety, shall be entitled to name it; and such name, if suitable, shall be adopted by the writer describing the fruit for the first time. But if the name proposed is inappropriate, or does not come within the rules of nomenclature, the describer shall be at liberty to give a name.

When two persons have named or described a fruit, the name and description first published, if according to the rules, shall have the priority.

4. In giving names to new varieties, all harsh, vulgar, or inelegant names, such as "sheep's-nose" and "hog-pen," should be avoided; and no name should consist of more than two words, excepting when the originator's name is added. Characteristic names, or those in some way descriptive of the qualities, origin, or habit of fruit or tree, shall be preferred. They may either be of intrinsic properties, as Golden Sweeting, Downer's Late; or of local origin, as Newtown Poppin, Hudson Gage; of the season of ripening, as Early Scarlet, Frost Gage; of the form and color, as Golden Drop, Blue Pearmain, or which commemorates a particular place or person, as Tippecanoe, La Grange, Baldwin; or any other titles, which may be significantly applied.

5. The descriptions of new varieties of fruits shall embrace the following particulars:

1st, An account of their origin.

2d, The fruit, its size, form, and exterior color, texture, and color of the flesh, flavor, and time of ripening; with the addition, on stone-fruits, of the size of the stone, adherence and non-adherence of the flesh, form of the suture, and the hollow at the stem; and in kernel-fruits, of the size of the core and seeds, the length, position, and insertion of the stalk, and form of the eye.

3d, The tree, its marked characters of growth, young and bearing wood, foliage and blossoms. In peaches, the form of leaf, glands, and the size of blossoms; in strawberries, the characters of the blossoms, whether staminate or pistillate; in grapes, the form of bunch or berry.

Trenching.

The editor of the *Southern Ruralist* says We have tried trenching for pear trees, for grape vines, for asparagus, for strawberries, for this thing and for that, and if we have ever been benefitted by it, we don't know it, and don't believe it. Nay, we know that in several instances it has been a decided injury.

The editor of the *Ruralist* should understand that, the results from trenching, whether favorable or adverse, like almost every other operation in the management of fruit or farm crops, depends upon circumstances. Some soils are benefitted by trenching, while others are not. There is something depeudent also upon the manner in which the work is done. We have had some experience in trenching, and at another time will give our views upon the subject.

—William R. Prince, of Flushing, N. Y., claims that his great-grand-father started the first nursery of trees in this country in 1732.

—One or two year old trees cost less at the nursery than older ones, less in transportation and planting out.

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Odoriferous Constituents of Wine.

It is well known in perfumery that freshly distilled waters have not the pleasant smell, particularly when they are prepared from newly culled plants, which they acquire after a lapse of time. So it is with wine, which requires cellaring to obtain its "bouquet." Oenanthic ether, a fluid that was first examined by Liebig and Pelouze, is generally supposed to occasion the vinous odor, but we find on examination that it does not. The odor of this ether is something like wine which has been exposed to evaporation, and is far from being agreeable; it makes in young wines the fragrance of aromatic principles, which do not appear until the oenanthic ether has undergone decomposition.

Brandy which is added to port wine, in the proportion of one twelfth, may at first be detected by its smell, but after lying three years the smell will disappear.

The most odoriferous ingredients predominate in wines containing free acids—tartaric acid, for example. Very sweet wines, however, such as those of Turkey, Spain, and Italy, are much less fragrant than those of France and the Rhine. Among the many peculiar odoriferous principles whose existence has been ascertained in wine, we only mention the important: Acetic ether appears in most, if not in all aromatic wines, and is developed in them by time. The adulterators of wine are well aquainted with this fact, and know how to make use of it. Both butyric and caprylic ether, very volatile liquids, with the odor of pine apples, have also been found in it. Caproic ether, which, has the smell of melon and golden zeineth and acetate of capryl, are other singularly fragrant ingredients. The pelargonic ether, a fluid found in remarkable quantities in Irish whiskey, and the capric ether, which is met with in the fusil oil of potatoes, are also present in the fermented juice of grapes. Acetal appears to be principally found in Hungarian wines.

Nothing, perhaps, will prove more strikingly the fallacy of the common text-book theory, that sugar only undergoes one process of fermentation, viz., that into alcohol and carbonic acid, than the presence of so many of the above ingredients. And we might add that not all vegetables which contain sugar, and ferment, will yield alcohol, since onions, though they are very saccharine, will yield entirely different products when fermented.

The simple fact that a few drops of wine, left in a bottle, will cause the latter to retain the vinous smell for weeks, is sufficient to show how very strong the odor of those principles must be, and still they do not appear in greater quantities than 1–10000 by weight.

The bouquet of wine is much improved by the ethereal oil that is found in the grape blossoms, and is best imparted to the wine by collecting and drying them carefully, and putting a little packet filled with them in the must. This method was recommended by the celebrated Linnaeous, on the ground that Smyrnian wines have been much improved by it.

Schubert evaperated wine till only one fifth of its original volume remained, and then confined it in a bottle, when at the end of five years, he found that it had a bouquet like wine of one hundred years of age. He therefore holds that the bouquet has nothing to do with the alcohol; but this view is certainly erroneous, since we detect many compounds of alcohol among the odoriferous constituents of wine.—*Selected.*

Flowers for a Grave.

The question is sometimes asked us, "what flowers are suitable to plant around a grave?" The feeling which leads to the decoration of the last resting place of the loved dead is a natural one, and one which is in accordance not only with good taste, but with the teachings of religion. It has found its public expression in many beautiful cemeteries all over the land, where the art of the sculptor has combined with that of the landscape gardiner to beautify the city of the dead, and make its walks attractive to the living. While the general arrangement of rural cemeteries is usually marked by skill and taste, their effect is frequently marred by incongruities in the individual lots, the owners of which show more zeal than discretion in their embelishment. One of the worst things to put about a grave is an elaborate iron fence, which looks like an ironmonger's advertisement. If the boundery must be marked, let it be done by a low hedge, but we prefer to see no boundery.—In a well ordered cemetery, the planting of trees should only be done under the advice of the Superintendant, as these become so large that they soon contribute to the general effect and are as likely to be out of, as in the proper place. But in these general considerations we are led away from the subject of flowers. In the first place we would avoid all gaudy colors, and in the second place, select those which need but little care. This last may seem an unnecessary caution to the recently bereaved; but we are so constituted that we can not always mourn, and we have seen many instances in which, for good reasons doubtless, these floral decorations fell into a neglect which showed they were not well chosen. A good green foliage, with white flowers, is the combination most appropriate to a funeral wreath, and is that which we prefer in floral decorations for the grave, though colored flowers are admisable, provided teey be of delicate tints. *Duetsio gracilis*, a low shrub, covered in spring with delicate white flowers, will be suitable where climate is no more severe than around New York. *Daphne cneorum*, a low evergreen with pink fragrant flowers and hardy. The Black Hellebore, or Christmas-rose, with large white flowers, blooming in November and March, though not very common, is well suited to the purpose, as is the perennial Candytuft—*Iberis sempervirens*, hardy and blooming freely, full of trusses of white flowers. Among the most appropriate flowers for the cemetery are the bulbs, such as do not need lifting each year. These spring up and flower, complete their growth and die down, and repeat this year after year, fit "emblems of our own great resurrection." White and bright colored Crocuses, and the Snowflake, are desirable, and bloom in early spring, while the Meadwo Saffron—*Colchicum autumnale*, flowers in attumn, with lilac colored bloom. Among the annuals, Sweet Alyssum is one of the best, and it is self sowing. All these will answer with only occasional attention, but where constant care can be given, a great variety of bedding plants and annuals may be used, avoiding brigbt yellows, scarlets, and all glaring colors—*A. Agriculturist.*

Horticulture in Kansas.

At a late meeting of the Kansas State Horticultural Society, Dr. Stayman, of the adinteram committee, read an interesting paper on the condition and progress of fruit growing in that State, and from which we gather the following:

"Every year's experience adds a new page to Pomology. What required years to accomplish, can now be done in a few months. We have very much reduced the years of anticipation to actual realization, and have kept close peace with the railroad and telegraph. It was once an old saying that we plant trees for our children, hardly hoping to enjoy the fruit ourselves, but that old saying has passed into oblivion with the experienced orchardist.

We have seen many trees planted in orchards two and three years ago, bearing one and two crops of good fruit, in many isolated cases the trees breaking with their weight of fruit. The trees are vigorous and healthy and promise the coming season a more abundant crop. They were grafted on short sections of roots and planted in nurseries just seven years ago this last spring. Such varieties as Red June, Oldenburg, Early White, Sewell, Jonathan, Wine Sap, Ben Davis, and Willowtwig, with the few new and rare sorts. While by their sides stands others planted ten and even twelve years ago scarcely bearing any fruit; such varieties as, Red Astrichan, Early Strawberry, Benoni, Fall Pippin, Northern Spy, and numerous other kinds. While we do not discard all late bearing varieties, we should plant a large proportion of the early bearing kind in a new country like ours, if we wish to reap the reward of our own labor as well as keep up with the progress of the age.

We found all the different locations producing good fruit, some varieties like Early Joe, Tetofsky, Oldenburg, Summer Pearmain, Fall Strawberry, Smokehouse, Ben Davis, and Wine Sap, were apparently adapted to all locations, while other varieties like Early Pennock, Keswick, Codlin, Rambo, Fall Wine, Fall Pippin, Fall Harvey, Smith's Sider, Ladyfinger, McAlflies, Nonsuch, and Esopus Spitzenburg were only adapted to special locations.

It has been supposed that an open prairie country was not good for fruit-growing, but repeated observation here has long since satisfied our mind, which has been more fully confirmed this season by a just comt parison made with good fruit growing states. We should be highly encouraged if the specimens sent to Philadelphia took the highest prize, for our orchards are young, and have received but little care and cultivation. Very few are twelve years old, the greater number from four to eight.—From all we have seen, young trees do not produce the largest and finest fruit. If Kansas, now, under these disadvantages, should be declared the banner State, what will she be ten years hence with her present progress. Notwithstanding these flattering prospects, we should not conclude that there is nothing for us to do; we should ever be on the alert for every insect enemy. The borer has done more damage to the apple trees than all other insects and diseases combined. We can safely say that at least twenty-five per cent of all the apple trees planted are lost from that cause alone, which including cost, interest, care and cultivation would equal fifty per cent, of the amount of money paid out.

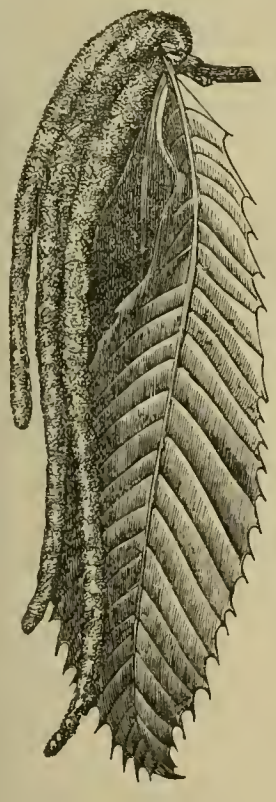
This borer which costs us so much money, labor and anxiety, can be prevented from doing us any damage, by simply banking up the earth steep around the trees about one foot high, and keeping it there. On the 10th of May a rain commenced, which continued for three days, and on the 19th the Pear blight made its appearance at a mean temperature of 65 degrees.

On the 12th of June the Apple blight had commenced severely at a mean temperature of 68 degrees. From the 10th of May to the 8th of June, it had rained 7.37 inches. The blight continued up to the 5th of August, when it ceased. From the time it commenced until it ended, was two months and seventeen days, and it had rained during that time 22.66 inches, being an average of about one fourth of an inch per day. From nine days previous to the blight ceasing, until the first killing of frost, on the 24th of October, it had rained 9.27 inches, being nearly three months; about a daily average of one tenth of an inch.

Timber—The American Chestnut.

Timber growing is a subject that concerns every inhabitant of the great Mississippi valley. Providence, though always wise in her provision for the well being of the human family, has not seen fit to distribute to every man's wants, just as man would seem to have it; a striking example of which is to be seen in the vast extent of our treeless prairies; and the greatest obstacle which now impedes their settlement is a lack of timber, and there is no other feasible way to supply that lack in time to come, except to grow it. The facilities for transportation, however good, cannot for any considerable time to come, supply the thousands and millions that will ere long inhabit the broad prairies of the West, with timber for mechanical purposes, to say nothing of fencing, fuel, &c. Should the facilities for transportation keep pace with the demand, the fact stands out in fearful demonstration that the sources from which our supply is now drawn will at no very distant day be exhausted.

It has been estimated by a careful observer, "that the pine timber within the limits of the United States and accessible territory will be exhausted in less than fifty years. Already immense quantities of pine lumber are being imported from the Canadas and find way to Eastern markets, and yet scarcity increases, and prices rise.—Every variety of timber composing American forests is alike disappearing; and it requires no prophetic ken to foresee what is to be the fearful destitution a century hence, if no measures are adopted and prosecuted vigorously to supply by art what hitherto has been so abundantly supplied by Divine Providence."



LEAF AND BLOSSOM.

A Michigan lumberman estimates that, taking the ratio of consumption of the pine lumber from the pineries of Michigan for the last five years, the whole of those mighty forests will be well nigh exhausted in ten years.

These facts are startling, and the question naturally arises, "From whence shall come the supply of timber for future generations?"—The only rational answer is Forest Culture. This settled, what varieties of forest trees shall we grow? Of the deciduous trees, the Chestnut, Black, White and Hickory walnuts, White and Sugar maples, White ash, Elm and the Birch are all very desirable, and may be easily grown from the seed. Among the number, the Chestnut stands pre-eminent in our estimation. There is no tree that can be reproduced from the seed more readily, or that possesses so many valuable qualities. For posts or rails the timber is invaluable, as it is almost imperishable. We have seen fence rails of it in new England fifty years old from the log and apparently as sound as ever. The tree is a rampant grower, re-productive and produces a most valuable and profitable fruit. No other forest tree possesses the re-productive power of the chestnut. A chestnut forest may be cut at any age and it will re-produce itself in six to ten years. We have seen sprouts pushed up eight to ten feet in a single season from the stumps of trees cut the previous winter.

How to grow the Chestnut.

The seed should be gathered when it drops from the burr and mixed with three parts of sandy loam to one of the nuts, and stored in a cool cellar for the winter. Fall planting, or burying out of doors exposed to the frost, is unsafe, though attended with success sometimes. The loam should be just moist enough to retain the natural moisture of the nut, so that the meat will not shrink from the shell. The nuts may be boxed up fresh from the burr and kept two or three weeks with out injury before packing in loam.

Nursery Growing.

For nursery growing, (which, by the way, we totally ignore,) plant eight to ten inches apart in rows four feet apart. The plants, when young, are tender, and liable to injury from a hot sun. The best protection is thorough cultivation of the soil to induce a vigorous growth, thereby increasing the vital power of the plant, and enable it to resist the effects of great heat. Late in Autumn turn a furrow on either side of the row up to the plants—hilling them up four or five inches. In winter they will kill down to the surface line, but if well buried up, the plant will send up a new shoot from below for the future tree.

Forest Growing.

For standard timber, or forest growing, lay off the ground as for corn and plant the nuts four feet apart each way, and put a hill

THE BURR OPENING.

of potatoes between them one way. The potatoes will serve to show the rows in cultivating. The second year, plant potatoes or beans the other way, and continue alternating those crops until the trees are too large to admit of a crop. When large enough to be of service in fencing, thin out by removing alternate rows each way—leaving the trees in squares of eight feet. If a large growth and a permanent grove is desired, when the trees begin to crowd, repeat the thinning out by again removing alternate rows—leaving the trees in squares of sixteen feet. Where hops are grown we do not see why the Chestnut may not be profitably grown for poles. Where grown close together, as in the nursery row, the trees run up very sraight and slender. If well cared for, five or six years growth will make a good hop-pole.

We would not advise transplanting the chestunt, for, after some years of most tho-

THE BURR OPENED.

rough trial, we are fully convinced that there is no economy in doing it, but on the other hand absolute loss. In the first place, the tree does not like removal from the seed bed. In the second place, we do know that the chestnut may be grown from the seed to a larger tree in four years, than a two or three year old transplanted tree will attain in six years. We may be stepping upon the toes of some nurserymen in making these statements, but duty to those for whom *we write* demands the truth—*the whole truth*, pinch where it may.

For the Western Pomologist.

Just What the West Needs.

FRIEND MILLER.—Having seen it announced that you intended to re-appear among the Agricultural and Horticultural journalists of the country on the first of January next, by commencing the publication of a journal exclusively devoted to Horticulture, at the city of Des Moines, I cannot refrain from the expression of my approbation of the enterprise, and offering you any aid in my power, to insure its success, as I deeply regretted your retirement from the management of the *Homestead*, with which you had been so long and so successfully connected. The valley of the Mississippi has not, to my knowledge, a journal devoted exclusively to Horticulture, while no portion of the east, with half its territory, is destitute of its journal devoted to that particular subject. We very much need a journal such as you propose to publish, particularly adapted to the Horticulture of the West; and at the same time, to blend, as far as possible, our views and interests with those of the East. There are some branches upon which it seems impossible for the East and West to harmonize. Our Pomology, for instance, is far different from that of the East, as many varieties of fruits, which seem particularly adapted to the East, prove comparatively worthless when brought to the West. Hence we are compelled, as a means of defence against the imposition which has been so long practiced upon our citizens, to resort to the use and cultivation of trees and plants adapted to our great section of the West. To accomplish this, as well as various other objects connected with western Horticulture, we should have a journal entirely devoted to that subject, to assist us in the interchange of our views. And, I have no doubt that, with your extensive acquaintance, so favorably known as you are, and your experience of near a quarter of a century as an Agricultural journalist, you will be enabled to make your journal just what it should be—the leading Horticultural journal of the West. As the pioneer agricultural journalist of Wisconsin and Iowa, and your long residence in those States, you are familiar with their wants, as well as of those of the adjoining States; and I heartily congratulate the people of Iowa, particularly, at their good fortune in being able still to avail themselves of the services of one who has done so much to promote their agricultural interests, and who has ever manifested so deep an interest in the subject to which you are now about to devote your energies and efforts. By your untiring zeal and unceasing labors in the cause of Agriculture, commencing with the publication of the *Wisconsin Farmer*, some twenty years ago, and ending with the establishment and successful management of the *Iowa Homestead* for a number of years, you have done much to promote the principal industrial interests of the West, particularly the branches with which you have been so intimately connected, and which open so wide a field to experienced journalists. I therefore sincerely hope, that the people will appreciate your efforts; as by so doing they are, to a certain extent, only rewarding you for many years' hard labor in their service, and at the same time, conferring a lasting benefit upon themselves and their posterity. May you, indeed, be as successful in your new enterprise as you have in the past; as, I am confident you engage in it more from a sincere desire to benefit the country, animated by your strong attachment to that healthful and pleasing branch of industry, in which you take so much delight, than by the expectations of realizing any great pecuniary benefit therefrom. S. LOMBARD.

Dongola, Ill., Dec. 26, 1869.

Classification of Flowers.

The flowers usually grown from seeds are Herbaceous Perennials, Biennials, and Annuals. Shrubs and trees are obtained at the nurseries.

Hardy Bulbs, like Tulips, Crocuses, and Hyacinths, should be planted in the autumn. Tender or Summer Bulbs, like the Gladolus, Tuberose, and Tiger Flower, must be set out in the spring.

Herbaceous Perennials are plants which die down to the ground every autumn, but the roots continue to live, and new branches and flower stems are thrown up for many years. Some continue indefinitely, but others die after three or four years, like the Sweet William; but if the roots are divided every year, they will continue to live and increase. These are called Imperfect Perennials.

Annuals flower the first season, perfect their seeds and then die. Some varieties that are grown as Annuals in a northern climate, are either perennials or biennials in their southern home, where there are no severe frosts. As annuals flower in a few weeks or months after being planted, and can be depended upon for a brilliant show, they have always been deservedly popular, and each year marks a great improvement in our list of annuals. With a proper arrangement, a continuous bloom may be kept up from early in June until frost.

Annuals are classed hardy, half-hardy and tender. Hardy annuals are those that, like the Larkspur, Candytuft, etc., may be sown in the autumn or very early in the spring, in the open ground. The half-hardy varieties will not endure frost, and should not be sown in the open ground until danger from frost is over. The Balsam and the Marigolds belong to this class. The tender annuals generally require starting in a greenhouse or hot-bed to bring them to perfection and should not be set in the open ground until the weather is quite warm. The Cypress Vine and the Sensitive Plant belong to this class; but, fortunately, very few of our fine annuals. Some of them do tolerably well if sown in the open ground the latter part of May, but very great success is not to be expected in this way. It must be admitted, however, that these distinctions are not well defined, and it is difficult to say where some kinds belong.—VICK.

Prolonged Ripening of Grapes.

The question, when grapes are ripe, is, with most people, less difficult to solve than how to get them ripe. In some favored localities, however, like the islands and points of the south shore of Lake Erie, the absence of autumn frosts allows such a prolonged season of ripening, that the grapes sometimes become over-ripe for their best eating condition. It is found that the Catawbas are of better flavor, more sprightly and agreeable, when just ripe, say about the 15th of October, than at a later period, when dead ripe, or in the best condition for wine-making.

Among wine-makers, there has been some difference of opinion in regard to the amount of gain, if any, from allowing Catawba grapes to remain on the vines from two to four weeks later than the time of the best market-ripeners of the fruit. With a view to settling this important question, the Kelley's Island Wine Company have made careful and extended experiments the past two seasons, the results of which will be read with interest by grape-growers and wine-makers. They are given as follows, in an essay presented to the Lake-shore Grape-grower Association, at its meeting in Cleveland the past month, from the pen of Geo. C. Huntington, Esq., of Kelley's Island.—*American Journal of Horticulture for October*, 1868.

On the 22d of October, 1866, the Company commenced buying Catawba grapes for wine, and continued to buy, daily, until the 13th of November, at which date the vintage was completed. The aggregate amount taken in was one hundred and three tons, comprising two hundred and thirty-five different lots, each one of which was sampled by pressing the juice from part of the lot, and testing the gravity of the must by Œschles scale,—the scale generally in use among wine-makers.

The result showed a gradual gain in the weight of the must until the close of the season. The time covered by the experiments was, however, so short, commencing later and ending earlier than usual, that the gain was not so great as might be expected in ordinary seasons covering double the time.

In 1867, the past season, these experiments were renewed, and continued through the entire vintage, running from October 15th to November 29,—a period of six weeks; during which time the company bought three hundred and fifty tons of grapes, comprising six hundred and ninety-one different lots, every one of which was sampled and tested as in the preceding year. The result

was very marked and decisive, as follows:

Average of whole quantity, 691 lots, 83.35 degrees. Average of 103 lots, from 15th to 19th of October, say entire receipts for five days, 80.06 degrees, or three degrees and twenty-nine hundreths below the average of the whole. Average of 81 lots, taken after the 15th of November, 88.13 degrees, or four degrees and seventy-eight hundreths above the average of the whole; thus showing an improvement in the quality of the must of eight degrees and seven hundredths between that pressed before the 20th of October and that pressed after the 15th of November, or a fraction over ten per cent.

To compensate for the loss in gross weight consequent on leaving the grapes so long on the vines, the price was graduated according to the gravity of the must; making the worth of the grapes picked after the 15th of November ten per cent more than those picked between the 15th and 20th of October. This increase in price was considered as more than equivalent to the loss of avoirdupois.—*Secretary L. S. G. Association.*

The Grape Season of 1869.

We see statements afloat that some of the principle grape regions are in a panic consequent upon the unfavorable season just passed. Somehow it has come to be expected that grape-growing must be an uninterrupted success; else we hear of great disappointments, and our friends who give their experience relate only their griefs, all which may be a relief to their wounded hopes, but is poor encouragement to those just embarking in the business and not very instructive except to their immediate localiteis. If there were less croaking and more interest manifested in improved culture and methods of training, it would be quite as well. Ours is a variable climate, and the *weather* not unfrequently makes or mars a season's success with all our products in their turn.

The cereals often fail totally or in a measure in different localities. The apple crop over much of our country of late is a failure three years in four. The fact is that in the past ten years no crop has been more certain than the grape, where there was a judicious selection of varieties and intelligent training and cultivation. No fruit is in more uniform supply in our markets during its season.

One thing has been pretty well settled for all this northern section, which is that the early varieties pay much the best. The Isabella and Catawba have had their day. The original vineyards in this country were mainly Isabellas. These are fast being supplanted by the earlier sorts. Some vineyards of the early varieties composed of Hartford, Delaware, Concord, etc., in bearing eight years or more, have never failed of a remunerative crop. Even in this worst of all seasons, in well cultivated vineyards the return has been highly encouraging. The Hartford, on early soils, is always reliable and profitable. The Concord is not popular everywhere. It is a poor shipper, ancient in quality. Rogers' No. 4 is a better grape every way, and ought to supplant it. I notice Solon Robinson, in the Farmers' Club, says the Concord will produce six times as much as the Delaware. Such is not the case here. A Delaware vineyard, with good cultivation, will yield three to four tons to the acre. This ought to satisfy any one. In this locality the Delaware seems perfectly at home. True the season just past has been wet and cold, which injured the foliage and retarded the ripening, but another such may not come in twenty years.

The Iona is not succeeding universally. Some vineyards on early soil have done well, and where it ripens, is a splendid grape. Several of the Rogers' Hybrids promise to be very valuable. In my own vineyard, Nos. 4, 15, 19 and Salem ripened their fruit well, and were healthy. They are all strong growers and *must have more room* to accomplish better results. The "American system" of training and pruning requires still further extension. These strong fellows, which reach out so vigorously, should be at least a rod apart in the row. Vineyards set half that distance should, after a few crops, have every other vine taken out. Leave more bearing wood, and thin out the smaller bunches of fruit. In that way we shall accomplish great results. Large, showy grapes sell well in market. If of good quality, we cannot raise too many.

We hope much from new varieties, but have not fruited them yet. Martha, they tell us, ripens so early "it will not keep." It is also very hardy. What a boon this will be to those sections where our grapes of best quality will not succeed. The Eumelan and Walter certainly put in strong claims for our recognition, and we trust that further acquaintance will confirm our most sanguine expectations.—*Lockport, N. Y., Cor. Country Gent.*

House Plants in Winter.

The Buffalo *Express* gives the following useful suggestions on the management of House plants in winter:

"The great obstacle to the health and beauty of the plants, kept in living rooms in winter, is the dryness and heat of the atmosphere in such rooms. This is a difficult matter to provide for. Many who love to beautify their homes with these cheerful plants cannot afford the expenditure of Wardian cases and other elaborate devices for providing a separate atmosphere for their plants. A good substitute is made by setting the plants into a broad, shallow box, and filling the space between the pots with moss. Then lay over a smooth coat of moss, covering everything but the earth immediately around the plants in the pots. The moss should then be kept moderately damp.

"This arrangement not only adds much to the appearance of the plants—giving the effect of that growing directly from the bed of bright green moss, but the continual evaporation from the moss will impart a considerable degree of humidity to the air immediate surrounding the plants. If the box is lined with zinc, it adds very much to its durability. In addition to any such arrangement, the leaves of the plants should be frequently washed or syringed.

"To protect plants from freezing nights, nothing is more simple and effective than newspapers. A single thickness of newspaper folded around a tender plant is sufficient protection against a moderate degree of frost. The most convenient form for the paper is that of a conical cap. It is quickly slipped on at night and off in the morning."

The Mulberry in the South.

G. W. C. Munro, Buena Vista, Ga., writes the *Southern Cultivator* his experience in mulberry culture. He writes:

"About ten years ago, I got a few sprigs for grafting of a mulberry which was very highly recommended, and represented to be ever-bearing or perpetual. I grafted into the morus multicaulis mulberry, and got about forty young trees from the grafts that lived. They were very slow in bearing, and not, until this year, have borne a remunerating crop. The berry is quite large, long and black, when ripe—begins to ripen about the first of May, and continues till July. I have another kind ripening at the same time, but the berries are smaller. One of my neighbors has still another variety, which is nearly white when ripe. These mulberries all begin to ripen at the same time, last two months, and are prolific bearers; and are valuable for hogs, as they ripen at a time when other fruit is scarce, or not ripe at all, except the plum, which, with us, ripens at the same time, and is equally valuable.

The mode of propagating the mulberry is simple. Take the morus multicaulis limbs, of one year's growth, and plant them in a furrow, as you would sugar-cane. They will put out roots and a stem at each bud. Take them up at the proper time for grafting, cut off the stem and divide the roots—put in the graft of the kind of mulberry wanted. Plant them out where neither stock, chickens, or anything else can disturb them. Cultivate one year carefully, and they will grow ten feet if the soil is good. The second year transplant them where they are wanted to grow, and be sure to never let cows and horses have access to them until they attain to large trees. The mulberry grows on desperately poor land, as well as rich, but not so large, and bears equally well on both. But the trees should have good distance on good land, say fifty feet each way. Plums may be planted in the mulberry orchard, after the trees have been standing ten years. If anything can be planted that will pay better, land must be high and labor cheap.

SEEDLING CHERRIES.—The *Horticulturist* suggests to Western fruit-growers gathering the pits of Louis Philippe, Early Richmond, Donna Maria, Belle Magnifique, Hortense, and other varieties of like habit or class, and grow new seedlings. If only one in a thousand prove of great value, there is a prospect that two-thirds of the balance will prove as good as the Early May now grown, and all will cetrainly answer for stocks on which to bud.

WESTERN POMOLOGIST.

To the Public.

In embarking in the new enterprise before us custom requires that we should introduce ourselves to the reader, and to speak of our purposes. As set forth in our Prospectus, this "JOURNAL," will be devoted to the Pomological interests of the West, and for the promotion of which, no efforts on our part will be withheld. We trust, therefore, that it will meet with a cordial reception at the hands of the fruit growers of the West, and that, through their liberal patronage and generous aid, its grand aim and object will be fully attained. It will be our aim to lay before our readers such information and disseminate such intelligence, as will be useful and of general interest to the horticulturists of the West.

Western Pomology differs widely from the Pomology of any other great fruit-growing district of the Union. We have a different soil, and a climate *widely* different —a climate subject to great and sudden extremes of temperature, with little or no snow for winter protection. Long, patient years of well-tried experience has fairly taught the old pioneer fruit-grower of the West, that the adaptation of varieties to our soil, and the vicissitudes peculiar to our climate, *must* be carefully and patiently studied to insure success. Sad experience has taught him that many of his old Eastern favorites are comparatively worthless here. Hence it is, that the teachings of Eastern or Southern Horticultural journals, though invaluable truths at home, are not in all cases applicable to the Pomology of the West.—Therefore, instead of deriving all our stock of knowledge of varieties and their management, or of giving ready credance to the opinions of book-writing men a thousand miles away, we should study and experiment for ourselves, and listen to the teachings of those who have made their observations in our midst.

Our western horticultural nomenclature is very much out of gear, and needs regulating. It is nothing unusual to find a single apple, pear or plum growing under two or three different names in as many localities, and in some cases, "nary name" correct. This is confusing to those who grow them, and should be corrected.

Enough has already been done in this great pomological field, to legitimately establish the conclusion, that the West is destined to surpass the older and justly renowned fruit-growing districts of the East. One of the oldest and most honored State Horticultural Societies (Pennsylvania) voluntarily and honestly yields the palm to the West, in the award of a GOLD MEDAL to the Kansas State Horticultural Society, for the beauty and excellence of her display of fruit at the late meeting of the American Pomological Society.

Much, however, remains to be done to increase and extend our knowledge of those varieties of fruits which we can most successfully and profitably grow. We must study the best methods of protection to our trees from injuries arising from meteorological influences, the ravages of insects, and the devastation of blight. This great amount of work, so important to be done effectually, can be accomplished only by the combined efforts of all interested; and to aid in its accomplishment we should have a channel of communication, through which the results of our individual and collective investigations may freely flow. To supply this want of communication, in a field hitherto unoccupied, is the mission upon which the "WESTERN POMOLOGIST" enters.

During a residence of more than twenty years in the West, we have been a careful observer of the progress of her Pomology. We have seen the growth of its products from comparatively nothing, to the value of millions of dollars per annum, and now feel an honest pride in having been an active worker in the promotion of this great and important interest. And now, with an ardent love for horticultural pursuits, and many years experience—combining theory with practice, we hope to make the WESTERN POMOLOGIST a journal whose monthly arrival may everywhere be hailed with pleasure and profit. No efforts will be spared to make it emphatically what its name indicates. Among the many sources from which to draw valuable information for its columns we shall make it a point to be present, or to have our journal represented at all important gatherings of fruit growers throughout the West, and to have it well posted in the advance of Eastern and Southern Horticulture.

Such, kind reader, is our pride and purpose, and to aid us in its accomplishment, we earnestly and cordially invite our pomological brethren everywhere, to contribute to its columns from their store-house of knowledge. By an exchange of ideas all become posted and way-wise. Therefore, friends, let us labor and co-work together, that thus through our united labors, the profession of Horticulture may be elevated "to that rank which Heaven intended it should occupy when He, who created man and placed him in the garden of Eden, selected the cultivation of the soil as the employment, best adapted to his physical and moral nature."

We will not tire the patience of the reader with an elaborate essay on our ability as a Horticultural Journalist; or, the great amount of good the WESTERN POMOLOGIST is expected to accomplish—leaving the paper to speak for itself, and, to the criticism of its patrons. We trust, however, a brief allusion to the past, in this connection, will not appear out of place. It is generally known, that for the last twenty years, except with two or three short intervals, we have been connected with the Agricultural and Horticultural press of the West. We commenced the *Wisconsin Farmer* in 1849, and conducted it until 1855, when we sold the paper to Messrs. Skinner & Powers, of Madison. We assisted in organizing the Wisconsin State Horticultural Society in 1863, also, the first Co Agricultural Society in that State.

In 1856 we became a citizen of Iowa, and from that date to 1862, published the monthly *Northwestern Farmer*, at Dubuque. In January, 1862, we came to Des Moines, and changed from a monthly to a weekly—the *Iowa Homestead*. In May, 1864, we sold the *Homestead* to H. W. Pettit. On the occurrence of Mr. Pettit's death, in May, 1866, we again took charge of the paper and managed it until September, 1868, when it passed into the hands of Geo. Sprague.

This number of the POMOLOGIST should not be taken as a fair specimen of future numbers. It has been gotten up in much haste. Less than four weeks have elasped since we fully determined to engage in the enterprise. In the mean time the material (the type cast) upon which it is printed has been ordered and received from the foundry, the illustrations all made, &c. We have also been without a single exchange. Of course we could not expect much in so short a time from correspondents.

NORTHERN ILLINOIS HORTICULTURAL SOCIETY.—The Northern Ill., Horticultural Society will hold its third annual meeting at Dixon on the 25th, 26th and 27th, inst. Those interested in horticultural pursuits are invited to be present from all quarters. New members for 1870 will not only recieve the the transactions of the society for the current year but also for the years 1867 and 1868. We do not learn from the circular before us what the membership fee is, but think it is $2.00, which, *we* reckon a first rate investment, for we know the society is a live institution. Those who cannot be present at the meeting may become members by addressing E. H. Skinner, Treasurer, Marengo, Illinois.

Heeting of Horticultural Societies.

WISCONSIN—At Madison, on the first Tuesday in February.

CENTRAL ILLINOIS—At Mattoon, on the first Tuesday in February.

IMPROVED PERSIMMONS.—Dr. Kirtland has been experimenting with these. He says he finds them vary considerable from seed, and capable of great improvement.

"The persimmon is perfectly hardy here, (Cleveland, Ohio,) but whether it would bear your climate is questionable. It is found native at Beavertown, thirty miles from Pittsburg. My trees were raised from seeds

planted in 1840. They began to bear fruit in seven years. This tree is dicecious, and at least three out of every four are barren or staminate. The fruits of no two are alike in size, form flavor, and time of ripening—and they come into maturity, in succession, from the 20th of September to the 1st of March.

Greatly improved varieties will no doubt be produced by crossing and cultivation. The foliage is rich and beautiful; hence the tree is ornamental on the lawn.

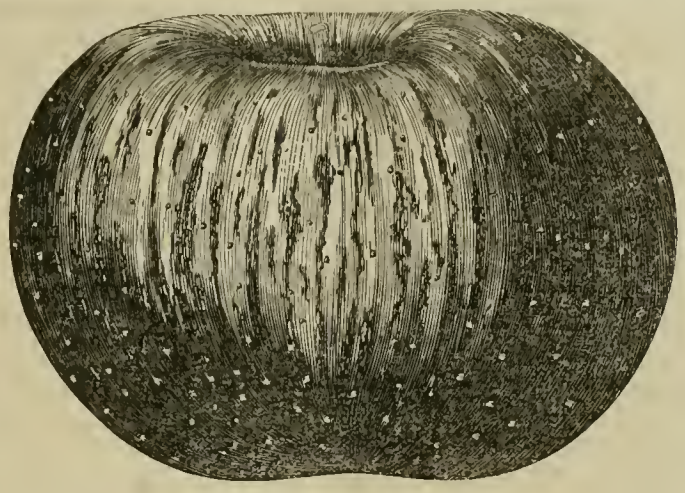
The "Monto Bello."

At the late meeting of the Illinois Horticultural Society there were three or four seedling apples on exhibition which promise well. Among the number was one from Warsaw, Ill., which attracted special attention, and a specimen of which we were permitted to appropriate to our own use. It was brought home and most deliberately tested in comparison with other varieties, and we have no hesitation in pronouncing it a most valuable acquisition to our western apple list. Symetry and color render it a beauty to the eye, while it is not lacking in flavor with any other apple of its season. We will let Mr. A. C. Hammond, a citizen of Warsaw, and a neighbor of the owner of the tree, speak for this apple; and we most heartily endorse what Mr. H. says of the fruit. We are surprised that an apple possessing so many desirable qualities should have remained oblivious so long. But better late than never. *One* of our specialties at least, in the management of the "*Pomologist*," will be to look after and bring to the knowledge of our readers such cases as this. We have already in hand several, which, accompained with the illustrations, will give the reader a very correct idea of the fruits:

MARK MILLER.—*Dear Sir:*—In compliance with your request, I send you a brief history of the "Monto Bello" apple. In 1833, Mr. Mathew Gray removed from the East and settled in Monte Bello township, in this county. Mrs. Gray brought with her and planted a small quantity of apple seeds, and one of the trees thus grown produced this magnificent apple. This tree lived about twenty years, when it was destroyed by a railroad excavation. Strange as it may appear, there are but three bearing trees known to have been propogated from it.

One of these trees, now standing in the orchard of Dr. Chandler, attracted my attention several years ago, and having become satisfied that the tree was productive and hardy, and the fruit of superior quality and uniformly large and handsome, I brought it to the notice of the Warsaw Horticultural Society, the past season. It was, by that Society, pronounced the very best apple of the season, and named the "MONTE BELLO," in honor of its birth place, The following is the description, published at the time:

President Hammond brought it to the notice of the Society and presented specimens of a seedling apple from the orchard of Dr. Chandler. It is a most magnificent apple, of the highest quality, and is certainly a great acquisition.

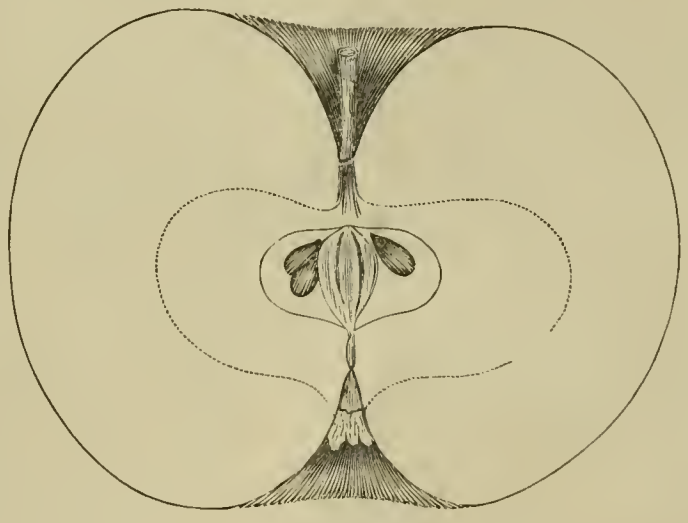


MONTO BELLO.

Description.—Tree rather upright, moderately vigorous, healthy, very hardy, early and constant bearer; shoots, grayish brown; leaves medium.

Fruit large, blate, very handsome, surface smoothe, color yellow, striped and splashed with deep red with, which it is almost completely covered; dots large and scattering; basin wide, regular or wavy; eye medium, closed; cavity wide, regular; brown, stem short and slender; core medium, regular, melting; seeds small, pointed; flesh white, fine grained, tender, delicate juicy; flavor mild, subacid, sprightly, vinous; quality very best; season, September to December,

A. C. HAMMOND.
Warsaw, Ill



OUTLINE.

—The sin of ingratitude has been universally detested; but that sin will never be charged upon Mother Earth.

Damage by the October Freeze.

MARK MILLER—*Dear Sir:* Inclosed find one dollar, and place us on your subscription list for 1870 for the "*Western Pomologist.*" We take a large number of agricultural and horticultural papers, but in a multitude of council there is wisdom. From our horticultural acquaintance with you, we think it would be wisdom to add the "*Western Pomologist*" to our list.

Since my return from our horticultural meeting at Ottawa, I have been examining our young apple trees in nursery, and find the hard freeze in October has injured them badly. Many varieties (two and three year olds) are bursted at the collar, the bark loose and discolored all the way round, while others are much discolored and not bursted—many very slightly. What will be the result I am not prepared to say. How much the bark and wood may be discolored, and the tree recover, I do not know. I know that in 1855, in our State, thousands of trees were killed and many recovered. Our one year olds (of which we have 100,000) appear to all be affected alike, without regard to varieties—Duchess of Oldenburg as badly as any.

Our hedge plants were, I think, all killed (I believe I showed you some of ours at Ottawa) in our section of the State. Within a few days past I have received letters from Iowa City in your State, saying hedge plants were much injured. I think a large majority of the plants in our State, that were not taken up before the hard freeze, are nearly destroyed. I am in hopes those that were not taken up, if left standing, may grow and make plants another year. Many fear the root is also killed. If the destruction of plants and trees should prove as general as I fear in our State, the loss will be thousands of dollars, and will fall heavily upon many individuals who have all their means invested in trees and plants. W. T. NELSON.

Wilmington, Ill.

Seedling Fruits—the Apple.

Shall we increase the varieties of our already large list of apples? It is well understood that our new varieties of fruits are produced from the seed; that new varieties of the strawberry, grape, and indeed nearly all of the small fruits are increased indefinitely, and, why should not the apple, the fruit of all fruits, receive a larger share of attention and experiment. We are fully aware that objections of no small difficulty meet us at the very start,—the innumerable failures that must inevitably occur to secure our success, the long time necessarily required to get an apple tree into bearing, &c.

Now, on the first point, let those whose business it is to raise seedling stock for grafting, go carefully through their whole stock, and select some of the most promising specimens, one in an hundred, or one in a thousand. Transplant these and put them under careful cultivation. Would each nurseryman and seedling stock grower in the country, select a half dozen or more trees, out of several hundreds of trees thus selected, there may perchance be one or more which will prove worthy of a place among our best apples. Those which fail to produce fruit worthy of propagation can of course be top grafted, and thereby not lost to the experimenter. Let those engaged in fruit growing feel that he who adds one good variety of the apple to the list, places himself on the catalogue of benefactors of his race and deserves to be made a saint in the calander of the Goddess of fruit.

Should the seeds be taken from some of the choicest varieties already in existence, we think the chances of securing an improvement will be greatly increased. The practiced eye of the intelligent nurseryman will rarely fail, in looking through his thousands of seedlings, in detecting one or more plants possessing some peculiarity of leaf, bark, or some other characteristic. Why may not the next ten years add largely to our present stock of valuable apples? And, why may not the great West, as in many other grand enterprises of the day, share the chief honor in this great and important work of public beneficence?

Utah Currants.

Both seeds and plants of these currants have been repeatedly sent to the Department during the past six years. They appear to be varieties of *Ribus aureum*, and although the fruit of several of them is large, of fine appearance, and of a variety of colors, from light yellow to black, yet it has large seeds and but little pulp, and will not probably be cultivated where the improved varieties of the red currant (*Ribus rubrum*) can be procured. It is said that fine jellies have been prepared from these fruits, forming a good substitute for that produced by the red and the white currant of the gardens. Many of these Utah sorts produce as large fruit as the cherry currant, but of no distinctive flavor.—*Report of Superintendent of the Experimental Garden and Grounds.*

"We can't Raise Fruit in Iowa."

Such has been the stereotype remark for twenty-five years. We heard it on first entering the State, and a new edition, enlarged and improved, has been issued with each succeeding year. Surely, there must be some cause for such a statement current as this. Men came to the State in its early history and inclosed all of their tillable land in one inclosure, more frequently, perhaps, joining one or more neighbors to save time and fencing material, and inclosed their farms together. Zealous to get an orchard, they bought fifty or one hundred trees, set them out, planted their corn, and let the trees stand their chance with the crop. Then autumn and winter came. They, or one of the neighbors must winter their stock in the stalk field, as in the hurry of a new country they failed to get hay. But then, the cattle probably will not molest the trees, and it must be risked at any rate. The result is, in the spring not a single tree is left, and of course "you can't raise apples in Iowa." Others have been in the country for a score of years, and have never set out a shade or fruit tree, because they have "*learn*" that fruit would not grow in Iowa. But they had a splendid orchard where they used to live, and have almost concluded to go back where they can raise fruit. Now, the fact is, with this class of men, *they never planted a tree anywhere.* And if it had not been for other than their class, there never would have been fruit raised in New England, New York, Ohio, or any other State. Somebody must set out, watch over and protect young trees, or you can never raise fruit anywhere.

Now opposed to this notion, we claim, not only can we raise fruit in Iowa and the contiguous Western States, but that we can do it better and more of it than in any other section of the country. There are noble pioneers who have planted, and waited the necessary time, have cared for their trees, have watched the adaptation of our climate to different varieties, have learned, sometimes by costly experience it is true, what to adopt and what to reject, and we are now reaping a golden harvest in some of the finest orchards and vineyards, and with specimen fruits that challenge, and carry off the premiums as the finest in the pomological exhibitions in the country and the world.

The history and experience of these noble men is within our reach, and it shall be the work of the "*Western Pomologist*" to gather up and spread before its readers such facts and statistics as shall eradicate from the western States, the odium cast upon them, and place them where they in truth belong, in the very van of the fruit-growing States of the country.

To this end we ask the assistance of amateur fruit-growers. Tell us your experience. Tell us the age and varieties of your trees. At what age from the setting your varieties began to bear, and what amount your trees are producing now. What proportion of your trees have died, and from what causes. In short, everything that has interested *you* in your noble work. And that is just what will interest and prove valuable to those just entering upon the business.

We mean to make the columns of the Pomologist teem with facts and figures, showing how wonderfully our soil and climate aid the Western fruit-grower. Let us hear from every part of the Western States.

The Kind of Trees to Plant.

Here is a bit of common sense and true philosophy that every man about to plant a tree should read and remember. And here we shall put in a word about the roots of trees dug for transplanting; and that is, we would rather have the principal roots of a good healthy apple tree cut to within six or eight inches of the crown, than to have them left longer. If the tree be rightly transplanted, new roots will be pushed out quicker and more vigorously, than if left twelve to fifteen inches in length. It is from the new roots that strike out from the terminous of the old ones, that determines the future of the tree, rather than the latterals, which at best never amount to much on the old roots. The extract alluded to is cut from the catalogues of Messrs Hargis & Summers of Quincy, Illinois.

"Many persons think if they select an old tree they must have fruit much sooner than by selecting a young one. Every year the fibrous roots, (the life of the tree,) grow farther and father from the stem, and consequently, in digging a tree four or five years old unless more pains is taken than the tree is worth, you have naked rods for roots, from twelve to eighteen inches long, which may throw out fibrous roots before the tree can grow, and unless the top is severely cut back, no growth will be made the first season; whereas by selecting a young, vigorous tree, a mass of fine roots is found at or near the stem, ready, as soon as transplanted, to take hold of the soil and commence feeding the top. Good, thrifty two and three year old trees will give the best returns; two in preference to four, and one in preference to five year old trees, unless more than ordinary care is bestowed upon them.

Plaster for the Curculio.—A correspondent of the *Western Rural* saved his plums from the curculio for three years by the use of plaster. His process consists of dusting the trees with plaster while the leaves and fruit are wet with dew. The plum should be entirely coated with plaster from the time they begin to set until they have outgrown danger from the curculio, Use about two quarts of very dry plaster on each tree, dusting it on from under the tree as well as from both sides. When the plaster is washed off by rain it should be renewed, as the curculio is very persevering and searches for a suitable place to deposit its eggs.

—The tillers of the soil are the only people who have a solid foundation in business, although they may not always make the largest profit on their labor.

Growing Peppermint.

A Rochester (N. Y.) paper says few people are aware that more peppermint is grown in the adjoining county of Wayne, N. Y., and more of the essential oil of peppermint manufactured in that locality than at any other place on the globe. The growth of the peppermint and the manufacture of the oil, is a vast source of revenue to Wayne county. The valley of the Clyde river contains many acres devoted to the culture of this plant. The mode of culture is somewhat similar to the cultivation of the rice crop in South Carolina. The plants are usually set upon low ground bordering the river, which is liable to be covered with water during the spring inundations. The plant derives great benefit from the annual overflow.

The ground to receive the plants is usually prepared with great care, and is carefully cultivated the first year. The crop reaches its most vigorous growth and abundant yield the second year. The third season it has nearly covered the ground, and the yield is much less. At the end of this season the old roots are taken out, and it is replanted in the spring. This process of cultivation requires a vast amount of labor, and is, we are informed, about to give way to a new process, which requires less labor, and makes the crop much more productive. An extensive cultivator plows over his peppermint field in the autumn, leaving all the roots in the ground, and the next season the plants start early, giving a fine, luxuriant growth, almost free from grass and weeds. This process can be repeated year after year, and it is thought will supersede all other modes of cultivation.

No doubt overflowing will benefit the peppermint crop, for the plant flourishes best in moist ground, but it is not an absolutely requisite. We have seen it flourish for years on the same ground without either overflowing or re-planting.

California Table and Wine Grapes.

California has gained a world-wide renown for her great abundance and variety of pomological productions, and their mammoth size. The most prominent attraction amid her horticultural products is to be found in the abundance, variety and long-continued supply of the grape crop. All the foreign grapes thrive there in the open air. The *San Francisco Alta* thus speaks of the comparative merits of California grapes for the desert and wine:

"The Muscat of Alexandria is more prized here than any other grape, on account of its large size and rich spicy flavor. It does best on a gravel loam, mixed with a little clay, and bears very poorly in rich clay loam without sand or gravel. The most productive Muscat vines are on the Sonoma Valley. In good years it yields 9,000 pounds to the acre, and an average wholesale price is seven cents per pound, making a grape yield of $630 per acre, of which $50 may be counted for cultivation, picking and sending to market. One of the chief objections of this grape is, that it does not "set" well in many places, and then the only way to secure a good crop is to pull off some of the blossoms and shake the pollen over other blossoms which are left to bear. The vine generally starts out to produce two crops every season, but the careful vigneron plucks off the second set of blossoms, for otherwise neither crop would ripen properly. The Alexandrian Muscat is the only grape that is good for wine and first rate for the table, for rasins and for long transportation.

The Flame Tokay is prized for its fine appearance and for its excellent keeping qualities, but it is useless for wine and has little flavor. It bears more than the Muscat of Alexandria, and has hitherto commanded the same price in the market. It may come into demand in the Eastern States. The Queen of Nice differs so little from the Flame Tokay that by many is regarded as the same grape.

The Rose of Peru is a large, firm grape, of fine flavor, yielding in good years 12,000 pounds to the acre. The price is about six cents per pound, but the inferior price is compensated by the superior yield as compared with the varieties previously mentioned. The Black Hamburg is large, fine in flavor, and well suited to transportation, but it is inferior to the Rose of Peru. The Isabella and Catawba vines produce little, and the grapes do not bear transportation. There are several Muscatels and some varieties of the Chasselas that are good for the table, but they do not bear shipment well. The Zinfindel, Malvoisie, Riessling, Black Burgundy and Traminer are excellent for wine, but are not in demand for the table. The Mission grape, especially when grown in the Los Angeles district, is very rich in sugar if plucked soon after ripening, and if left on the vine till November, the sugar changes to spirit, so that it becomes highly vinous, and is for that reason preferred by some persons, but it could not be transported from the Southern coast to the Mississippi valley with profit, although it could be obtained in any quantity at two or three cents per pound. Many of the Mission vines will be grafted next winter, mostly with the varieties preferred for wine."

Apples Now and Then.—Twenty years ago the apple-orchards in Western New York were not considered of any particular value to their owners, as the very best varieties could be purchased for twelve cents per bushel, and cider would seldom bring more than a dollar per barrel at the press. Now it must be apparent that apple-culture at that time was not a very profitable business. But the times have changed, and the increase of population and facilities for transportation have caused an increase in demand, until the farmers in that section have no difficulty in obtaining four or five times as much as they did a few years ago; consequently, the cultivation of this fruit with them is now a profitable business.—*Horticultural Record.*

Mulch for Winter Protection—Mice.

There are many varieties of what are termed hardy bulbs, that will bloom much better than they usually do if protected in winter. A few inches of coarse litter, such as straw, hay, or corn-stalks, will answer the purpose very well; but when these are applied before the ground freezes they help to keep the frost out, consequently mice and ground moles find a very convenient harbor among the bulbs.—*Ex.*

It is a very bad practice to apply any mulch to bulbs, strawberries, or to any other hardy or half hardy bulbs or plants before the ground freezes. No such application is advisable until the ground becomes frozen to the depth of four to six inches. Mulching for winter protection is not so much for protection against frost as against the alternations of freezing and thawing. The desideratum sought is, to retain the frost in the ground and thereby secure to the roots of plants a uniform equilibrium of temperature. If the mulch be applied too early there is imminent danger of smothering the plants. There is no surer protection against mice, than frost and straw, if properly regulated.

Shading by whitening the Glass.—The details are probably these: We have found no mode more simple than skim-milk, with a little powdered whitening mixed with it (say as much whitening as the size of a walnut), reduced to a fine powder, and thoroughly mixed with two or three quarts of milk. We would advise those trying the scheme to do a piece of glass first. Let it dry, and add to the milk or whitening as they require less or more shading. If it be put on quickly and thinly by one man with a brush, and another follow with a dry duster-brush, merely daubing it quickly with the dry brush, the shading will have the appearance of shaded ground glass, and look neat.—*A Journal of Horticulture.*

Effect of Temperature on the Grape.—J. Pearson, in *Cottage Gardener*, says: "When I was a boy I remember seeing a vine which was trained across three houses; it was in flower in one house, the grapes were half grown in the second, and quite ripe in the third. I believe it was planted in the middle house and trained right and left, but of this I am not quite sure, nor is it important. These flowers, and green and ripe grapes, all grew on the root, showing, I think, that the temperature of the atmosphere has more effect on a growing vine than the temperature of the soil.

—Fruit retains its color and flavor best when cooked but a short time in sirup, but it is less likely to ferment when boiled a long time.

—Uniform temperature and a constant supply of moisture, are the prime elements of success in fruit culture. Mulching enables us to accomplish this.

President McWhorter's Address.

We present below, the address of Tyler McWhorter, President of the Illinois State Horticultural Society, at the Fourteenth Annual Meeting at Ottawa, on the 14th ult:

Friends of the Illinois State Horticultural Society:—Most cordially I greet you all, and congratulate you that we are again convened to enjoy that reciprocal good feeling, for which horticultural gatherings are so much characterized. And I trust there will be no abatement in our zeal in investigating those interesting subjects, so intimately related to the higher advancement of our civilization, the improvement of our landscapes, the charms of rural life—in short, to our whole domestic prosperity.

It is with much diffidence that I assume the position to which you have elected me—a position which was to me quite unexpected, and I will add, unsought. If I fail to meet your expectations, I will trust that the same spirit of kindness and personal respect that have ever been manifested toward me, will induce you to bear with my incompetency.

We are assembled together to hold our fourteenth annual meeting, here in this interesting town of Ottawa, surrounded by the picturesque scenery of timbered bluffs and rocky promontories, that call to mind the memories of Indian legendary.

With the older members of this association it is but natural to recall the fact, that the original foundation of our present society was the Northwestern Fruitgrowers' Association, organized in the autumn of 1851.

Sitting before me are some familiar faces of those who were among the founders of that primitive organization; and inadvertently the mind recalls the memory of those who then anticipated in our gatherings, but have since passed away.

In looking back over the field of our past labors, we have abundant reason to congratulate ourselves on the practical progress we have made. A spirit has been awakened in the public mind until tree planting and fruit growing have been carried to an extent, that at that time no one could have anticipated—even in some instances the spirit of planting has outrun people's judgment. Over our broad prairies where the wild winds and prairie fires had free sweep, we have lived to see it dotted with valuable homesteads, surrounded with groves and orchards and lines of hedges. We see an increasing tendency to improvement in homestead arrangements, to which the rich and enlivening effect of evergreens begin to appear. Lands formerly deemed worthless, have been brought into valuable requisition, and extensively applied to fruit culture.

During the fruit season, loaded fruit trains are moving over our railroad lines, until well filled boxes and baskets are heaped and piled in the markets of our larger towns, and the markets of nearly every railroad town in our State is perfumed with the aroma of our fruits! Grape culture, from the State nonentity, has been sprung into being, and by a spirit of enthusiasm is being extended over our whole country!

But it is not to regail ourselves over what we have accomplished, that we are come together; but to consider earnestly the work that is before us. Too well I understand the character of the men whom I address, to suppose I can satisfy you with flourishes and rhetoric. You will expect from me practical suggestions on the subjects of our investigations.

As a horticultural society we have field of investigation, scarcely equalled by any other State. True, we have not the diversity of mountain ranges or inland lakes. The hilly range extending across the Southern portion of our State, the loess of our river bluffs, the changes in our underlying geological formations, the diversity of our black prairie soils and thinner soils of our rolling lands, constitute the principal topographical features, having any local influence or horticultural pursuits. But the fact that our State has an extent of nearly four hundred miles of latitude, gives to our Horticultural Society an extensive field of labor.

Again, the climatic character of our inland region, the extreme vicissitudes of our changing seasons, constitute for us a special subject of inquiry. Some seasons we have continued rains and cloudy skies, favorable to the spread of the fungus family, greatly affecting the products of our orchards, vineyards and gardens. Such has been the preceding season. Other seasons have extreme drouths extending into autumn; so that the trees close their growth in mid-summer; circulations ceasing before the essential elements are elaborated to sustain and perfect the next year's crop. Such was the summer of 1867, followed by the deficient crops of 1868. Our soft southern winds that prevail in the summer months, extending into autumn, give us a free growth, but not always well ripened wood to endure the severity of the winter.

These peculiarities of our climate, and the very distinct character of our sub-soil—more favorable for deeper planting—renders it unsafe for us, in the valley of the Great West, to rely for instruction on the horticultural savans of the Atlantic States. It devolves on us to solve our own horticultural difficulties. And it cannot be disguised, that, to some extent, these difficulties increase with the increased extent of planting. This is perhaps only what we should expect. That the prevalence of insects and parasitic fungi will multiply and extend in proportion as we provide the means by which they can exist, is but a natural result. This has been the case in other countries. More diseases and more scientific skill is required to raise fruit, as the country becomes older. This is so much the case in the Eastern States that an opinion has gained considerable extent, that the apple crop is there on the decline. In the minds of some this is an occasion of some alarm. I have placed in the hands of the Secretary, an extract from a private letter from J. J. Thomas, on this subject, and I think the Secretary has communications from other horticulturalists of the older States, on the same subject. The letter from which I have made extracts is in the brief condensed style for which the writings of that veteran horticulturalist is characterized. Mr. Thomas takes a common sense view of the subject, free from hypothetical vagaries.

Thus it seems to be a fact that, with the increase of orchards, we have an increase of fungoid infections and insects that infest orchards. It is from this circumstance that several varieties of apples, that were most profitable in our first orchards, are now so scabby and worthless, that they are falling into disrepute. Hence, it is, that our fruit lists needs occasional revision. Varieties, that a few years ago we held in the highest regard, we are inclined to reject.

As yet we can boast of no signal triumph over the hordes of insects that infest our orchards and gardens, and scarcely any control over the various fungoid infections.

The subject of pruning is one on which western horticulturists are quite unsettled in theory We have not yet given this subject the close observation that its importance deserves.

I would also invite attention to the subject of cultivation of orchards and fruit grounds generally. We often have excessive rains, our soils are easily washed. We are yearly applying to fruit culture more grounds with broken or unbroken surface. We are startled by the revelations of geology, of the wonderful denudation of continental regions in past durations of time! fortunately for us, that, by some means, (we know not how) a goodly thickness of *drift* was spread over the old denuded surface, constituting for us the best sub-soil of which any land can boast. But if several hundred feet in thickness, of the original surface was carried away by the action of the elements in past time, well may we concern ourselves with the ten fold greater rapidity with which the surface of our cultivated grounds are now being washed away and carried off by our streams. While we are reveling in a soil enriched by decaying grasses and the ashes of prairie fires of past centuries, it becomes us to consider how we are to secure continued fertility after the vegetable humus and alkalies of our present surface shall be washed away. To counteract or diminish the washing process, to what extent we may profitably resort to underdraining, surface mulching, seeding to grasses, or to other means, are important considerations.

As horticulturists, it is not only proper for us to learn in the various departments of our pursuits, how a given amount of labor can be turned to the most dollars and cents; but if we are that dignified, scientific, self-sacrificing body of men we claim to be, this should not be the sole object of our deliberations—not solely to conduct our avocations so as most efficiently to line our pockets; but we should study and work for the love and pleasure of bringing forth fruits or facts that may be a blessing to those that come after us.

Thus far, all the progress that has been made in the improvement of varieties of fruits, beyond the labors of a few isolated experimenters, has occurred from accidental seedlings. As yet, very little has been done in the production of new varieties by artificial means of fertilization.

For untold ages this work of hybridizing has been going on through the agency of the winds and the little bee. Let us take hints from nature, and learn from the bee. If the bee can transmit the pollen of the flower from tree to tree and plant to plant, may not the hand of intelligence do as much? A wide and interesting field lies before us almost unexplored! What blessings to posterity is yet to be the reward of scientific diligence in this direction?

If all our melting pears have originated from the wild choke pear of Europe, and the peach and the almond from the wild peach of Persia, by the means of natural variations and accidental crossings, who shall say where is the limit to the improvement of fruits, or what may not be effected by intelligence in artificial means of hybridizing?

With the accidental seeding we experiment with not to exceed one chance in a thousand for improvement. With hybridizing, we proceed with intelligence and a reasonable expectation of what may be the result. It is but making a practical application of the principles of nature for the amelioration of our fruits. I will venture the opinion that through this means a class of fruits will be brought forth in future entirely surpassing our present selections. We yet know nothing of any bounds that nature has set in the improvement of fruits.

Between the Siberian apple and the common apple, it is believed that several accidental hybrids have already originated. I am aware this is doubted by some, merely on theoretical grounds. But it is now well known that hybridization is not in all cases bounded by the barriers of botanical classification. We have already crossed that boundary line in different instances where the specific difference is more strongly marked than between the *Pyrus malus* and *Pyrus malus prunifolia*. What a pity, that

Nature pays so little regard to some of the *by laws*, and *botanical rules* we have prescribed for her in *our books!* And who shall say through means of artificial hybridizing what is to be the mission of the Siberian apple? May not new hybrids be originated having mainly the hardy characteristics of the tree of the one parent, and the fruit of the other? And thus, may not the cultivation of our apple be carried up our mountain slopes, and beyond the line of British America. On this subject of hybridizing, there is an interesting field of inquiry of which we are yet almost entirely ignorant. It rests with us to make an advance in this direction, or leave it wholly for those who shall come after us.

While tree and fruit culture have extended greatly in the last decade of years, and we have learned much of practical cultivation, yet it must be confessed we have not made equal progress in the improvement of varieties, except, perhaps, with the Grape.

It is true that some varieties of berries have made their advent under fanciful names, and the use of much paper and ink. But in most cases, after the sale of the first plants, under the puff of advertisements, they are scarcely heard of.

With that most desirable fruit the Cherry, we have made no advance, since the labors of Prof. Kirtland. The lonely Early Richmond (or to please some of our friends, we should perhaps call it *Early May*) holds entire monopoly in our Western markets. We would not discourage those who are experimenting with seedlings from this variety; it is an enterprise from which we may hope for good results. But I would solicit attention to the more certain means of hybridizing with the Dukes.

The subject of the influence of dissimilar stock on fruitfulness, is one that demands more close attention. We already understand that circulation may be retarded by a dissimilarity of stock. And, that whatever retards circulation, increases the formation of fruit buds. It seems nearly conceded that the Early Richmond is more productive on the Morello stocks; and, that several varieties of apple have shown more tendency to productiveness when budded or stock grafted. Some recent experiments seem to indicate that several varieties of the sweet cherries will succeed with us when worked on the Early Richmond as a stock. This subject should receive more attention; also that of working some of our most desirable apples, that are shy bearers, on some of the Russian varieties, or on Siberian stocks. With a laudable ambition we have proved ourselves able to supply our markets with fruit; let us next devise the means to supply a *better quality*.

Another subject to which it is thought proper to invite your attention, is that of some action to guard against the introduction and spread of the Canada thistle, and other noxious weeds from the older States. This subject legitimately claims the attention of this society; for the means by which we are in the greatest danger of the Canada thistle being introduced into western soil, is in the packing of the nursery stock, shipped from the East. This has already occurred in some instances. I submit to you, to take such action as in your judgment may be thought most efficient to check, or prevent this dreadful pest. It may be advisable to appoint a special committee to communicate with the Secretaries of County Agricultural Societies and other persons in different counties of our State, to ascertain to what extent this this thistle is already introduced, and to solicit the action of Agricultural Societies to take steps to eradicate or check the evil.

Our society has not been delinquent in its duties in making repeated efforts to admonish the public against imposition. In these efforts it is to be regretted, that we have so little reason to be gratified with our success. The evils and imposture that are but natural consequences of the prevailing system by which trees and plants are disseminated over the country are apparent to all. But the existence of these evils is in a measure due to the fact that a considerable portion of our western people have a morbid craving for imposture. With that class of individuals, horticultural societies can adopt no means to fortify their credulity, But for the sake of those who seek information, let us continue to disseminate such ecution as may place the public on their guard against all manner of imposition, Let us continue to be guarded against any action by which we will become accessory to any speculation scheme.

Your attention is invited to the subject of dividing the State into Fruit Districts, as proposed by our Secretary in the printed circular calling this meeting. In the proposed division into seven Fruit Districts, it is the object to take into consideration difference of latitude, temperature, rain falls, geology and topographical configuration.

It is submitted to your judgment, whether this or a similar division will not be better adapted to a successful management of our society, with the view of electing vice presidents and other officers with regard to the Fruit Districts.

But before closing this address, it becomes my duty to drop a tribute to the memory of a departed brother. One whose loss we shall deeply feel! One who, by earnest application, had advanced to high scientific attainments in a department of knowledge of the highest importance to horticulture! One who, from the genial worth of his soul, held a place in all our hearts! By a sad casualty, our State Entomologist. Dr. B. D. Walsh, has been taken from us! He died on the 18th of November.

Window Plants.—I have been considered to have success with my window plants, and without presuming that my way is much better than other people's, do think my plants are as good as any of my acquaintances. I thought I would say that I think your directions very good about not having too much fire heat in the room where the plants are kept, as I have found it to work to the injury of the plants. I try to let them have as much sun as I can give them, and sprinkle them at times to keep the dust off, and the insects down. But there is one thing I do which you have said nothing about, but which I think has much to do with my success, namely, I never water my plants with anything but lukewarm water. I most always have a pitcher full of water standing in the sun by the window to get warm before using it; but if I should want to water my plants before I have my water warmed in the sun, I pour in a little from the tea-kettle, just to take the chill off of it. Though I have no fire in my room, my plants keep growing all winter, and China Primroses and Scarlet Geraniums, and some others, bloom well before winter is over. If I have any fear of frost injuring my plants, I take them entirely away from the window, and place them on the floor, covering them with muslin, and keep the shutters closed as much as possible. I have not got to take this trouble often, perhaps only half a dozen times during the winter. If my experience will be of use to your paper, you may publish my account of it.—*R. W. B., in Gardener Monthly.*

Nature in Horticulture.

At a late meeting of the Alton, Ill. Horticultural Society, Hon. W. C. Flagg read an essay on Nature in Horticulture, from which we make the following extracts:

"We hear much loose talk in horticultural matters about "following nature." One man proposes to follow nature by omitting cultivation; another by abolishing pruning; another by mulching, and so on; justifying some very diverse and curious practice by that ambiguous expression.

In this essay I wish to call attention to one or two propositions, qualifying, and taking exception to this mode of thought and practice.

I. In horticulture we do not seek the conditions nor the results of nature. Instead of scattered trees growing irregularly, we want great masses regularly planted, for convenience in cultivation. Instead of vigorous trees, we want fruitful trees; and in place of the small and acid fruit of the fields and forests, we desire the large and luscious monstrosities of the garden and orchard. "It is evident," says Dr. Warner, in his work upon apples, "that very often the conditions of a plant and its products, which we most highly prize, and towards which all our efforts in its culture are directed, are really departures from the natural and healthy *statas;* or in other words, what we covet, is really a state of diseased and abnormal action."

II. Hence, it is evident that we cannot say we "follow nature" in horticulture except in this sense: that we must know the laws of nature, and obey or violate them acording to the object to be accomplished. In propagation, we learn to observe the law of relationship in grafting the apple upon the apple, and not upon the pear; and again to violate it in grafting the pear upon the quince, in order to threaten life, which tends to fruitfulness. In transplantation, we learn that fibrous-rooted plants recover themselves most easily, and seek by frequent removals to induce roots of that character for the benefit of the tree in its final and permanent planting in the orchard. In cultivation we stimulate an excessive growth to obtain early maturity; and in pruning, we sometimes endeavor to induce stronger growth of wood; or again to threaten life and induce the fermentation of fruit buds.

These illustrations might be continued at great length; but perhaps I have given enough to show that the art of horticulture is the wise application of natural sciences, and hardly, in any sense an imitation of the prodigal and costly methods of nature. Nature is extravagant; as in view of her large landed possessions, she can afford to be. She can devote several rods of ground to growing an inferior and sour crab apple tree, such as we read in "John Brown." But the thrifty fruit grower on his forty and eighty acres of land must husband his space and make every rod blossom and fruit. His art must "mend nature." Nature don't care whether she gets a crop or not. She has no debts to pay with the expected fruit. But the horticulturist has "his young barbarians at their play," whose natures, at some expense, he hopes to train and rear into something higher and nobler; and this and food and raiment make profits needful, and, as all men should, he must produce or create these profits by yearly care and toil.

Exhibition of Insects at Paris.

An Association, says the *American Entomologist*, was established in Paris in 1867, for the special study of those branches of entomology which are of practical importance to the agricultural and industrial portions of the community. The Society held an exhibition in 1867, and a second one in August, 1868. The very existence of a society of this kind, shows how thoroughly the French people are alive to the great importance of the insect question; and it is to be hoped that the day is not far distant when we shall have a similar organization in this country. By association and by combination, we can always accomplish more than by individual effort.

That our readers may get some idea of the character of this exhibition, we make the following extract from a report published by Mr. R. T. Lewis, in the October number of *Hardwicke's* (London) *Science Gossip:*

"The second division of the exhibition (*insectes nuisibles*) was subdivided into ten classes, in which the insects were arranged according to their habits, instead of in the scientific order of their genera; a plan admirably designed for practically useful purposes. Here, at a glance, a person interested in the cultivation of a particular plant might see specimens of every insect known to attack it, and not only were they shown in their perfect form and of both sexes, but also in the larva and the pupa states, with specimens of their eggs, and of dried portions of plants which had suffered from them. To each series labels were affixed, upon which were written the names of the insects, in Latin and in French, with brief notices of their ravages, and in some instances also the means of their extermination. There was an excellent collection of stuffed birds, with their nests and eggs, and many contrivances for the fostering and preservation of their young. The value to the agriculturist of these feathered allies, especially in a country teeming with insect life, was demonstrated by carefully tabulated statements, and by the exhibition of upwards of 300 glass tubes, each of which contained the *debris* of cockchafers and other destructive insects taken from the crops of little birds. In the same class were also a number of live tortoises, lizards, and other insect-feeders, as well as of ichneumons, and such insects as prey upon their fellows."

China Tree Fences in Mississippi.

A correspondent of the *American Agriculturist* relates the following method practiced by planters in fencing the prairie lands in Mississippi with the China tree:

They drill in on the line of the intended fence, in the fall, the seed of the China tree; the following spring strong shoots come up, growing several feet in hight the first season. These are thinned out to ten or twelve inches apart, and left to grow, the tops being pruned that they may not be blown down, and also to force as much growth as possible into the trunks. As they grow very rapidly, only about four or five years are required to fill about one-half the space between them. When of sufficient size, the tops are all sawed off evenly at any hight required, (in autumn,) and allowed to fall on either side of the stumps, and to lie and dry during the winter. In the spring when vegetation again starts, these tops are set on fire and burned, the heat being usually sufficient to kill the stumps, and soon the bark peels off, leaving a line of straight white posts, firmly set in the earth, which will last for a long time. I don't know as this tree will stand the cold of the Northern winters, but think it will; and if so, only a little time, not much trouble, and almost no expense, will attend the setting of a good fence. Any quantity of seed can be had in this section of country at small cost."

Orchards in Grass.

As with pruning and some other horticultural operations, there is more or less difference of opinion upon the question of grass *vs.* cultivation for the orchard. In looking over our file of the *Gardener's Monthly* for 1863, our eye met the following from Dr. James Weed of Muscatine. We would like to hear from the Dr. on this subject—whether seven winters have changed his views?

"We begun planting orchards in meadow, in this State, some fifteen years ago. To secure a vigorous but moderate growth, that would be likely to endure a severe and trying climate, and the difficulty of employing careful workmen to plough and cultivate the land in crops, were our principal reasons for planting in meadow. Four or five feet circles over the roots of the trees were kept well cultivated for three or four years, when the grass was permitted to occupy the whole ground. Top-dressings of manure have been applied, to some extent, for the mutual benefit of both the grass and the trees, and the latter, as desired, have been uniformly hardy on all suitably dry ground, while many trees in orchards constantly cultivated in crops have been killed.

The past season has afforded us new experience. When the drouth had fairly set in, in June, we said, "Now if this should continue through the season, the grass may so exhaust the moisture from the soil, as to deprive the trees of an amount requisite to mature a crop." A part of the orchard in which blue grass had excluded other varieties, and thus become unproductive as meadow, had been ploughed up and cultivated two years, and rows of different kinds of summer apples extended across both the meadow and cultivated ground; and, although the fruit on the trees cultivated was somewhat larger than on those in meadow, the crop on the latter was of fair size, abundant, and altogether better than we supposed could be realized under similar circumstances.

On our rich soils at the West, it would be time wasted to advocate "clean culture,"—the question lies between grass and cultivated crops. Sowed crops are inadmissable; the plough destroys the surface-roots, and the growing grain monopolizes the nutriment and moisture.

Those who are impatient in waiting for an orchard, and are willing to incur the risk of losses from blight and severe winters, will plant in corn or other hoed crops. Others who are disposed to be always on the side of safety, and are reluctant to lose valuable trees occasionally when grown, will, we think, prefer grass-culture. They will certainly realize an important advantage from this model—he fruit, when it drops from the tree, will be always clean, and require no washing, as is the case when it lies on cultivated ground during rains."

Producing Mushrooms.

The English and French people make great account of mushrooms. In our country they are not highly prized, though they are becoming more common. The English *Journal of Agriculture* gives the following method of growing them:

"My experience as a mushroom cultivator extends over a period of twenty years. During that period I have grown them in many different ways, in many fashionable as well as unfashionable houses and sheds, and in the open air, during summer and winter, in different parts of the country, and for various purposes—for the supply of ducal tables, and for sale in Convent Garden Market—and I can truly say, without desiring to boast of my own success, that there is no vegetable so simple or easy of cultivation as the mushroom.

The method which I generally adopt for winter supply, and that which I have found the simplest, may be briefly stated thus:—I procure two cart-loads of good, fresh stable manure, and shake out the longest of the straw. I am not, however, very particular about this. Then it is turned over in the open air once or twice to get rid of the rank steam. When this is gone, the dung is taken into one of the sheds at the back of the houses, and about four barrow-fuls of ordinary fresh soil mixed with it. The bed is then made up on the floor of the shed, to a depth of about twelve inches, pressed rather firmly, and spawned when at a temperature of between seventy-five to eighty degrees. A covering of an inch of good, strong loam, in a rather rough state, is then added, and beaten level with a spade. By using heavy loam as a covering, the mushrooms produced are of a much more solid character than where light, sifted soil is used; they are, consequently, more valuable, commanding a far higher price in the market. The whole is then covered up with at least nine inches of straw or long litter.

I never use any fire heat, as I consider that a piece of useless extravagance. Better mushrooms can be grown without fire heat than with it, and a continuous supply kept up throughout the coldest winters.

I have several beds in bearing now that have been made in the manner described. To-day (Dec. 16th) I have picked a small pailful from a square foot. I could pick many such—in fact, the beds are a perfect sheet of white all over. Seeing that they are so easily cultivated, who would be, who need be, without their dish of mushrooms?

—Pie plant should be transplanted every two or three years if you would have a large growth. The stools should be taken up very early in the spring and divided. The work should be done early, for the buds push out at a very low temperature.

—White and black hickory nuts, found under the leaves in the forest will grow if gathered.

Gleanings, Wants and Helps.

Transmission of Scions.—The transmission of a few choice scions for a long distance safely, may be done by putting them into a glass vial, or any glass bottle long enough to contain the scions, and a small piece of dry sponge. Press it to the bottom, and water sufficient to saturate it. Then put the scions in the bottle with a wet sponge on top, and seal the vial hermetically. Wrap in strong paper, and they may be sent by mail almost any distance, and will be found perfectly fresh.

—A San Francisco paper looks forward to the time when grapes from California, by the Pacific Railroad, will be retailed in the Atlantic States for five cents a pound.

—Apples decay more rapidly in the light than in a dark place.

Wax for Top Grafting.—A correspondent of the *Massachusetts Ploughman* gives the following directions for making wax for top grafting: Resin, three pounds; beeswax, one and one-half pounds; linseed oil one pint. Thoroughly melt the beeswax and resin, then add the oil, and boil over a slow fire some time, then pour it into a vessel of cold water. When taken out, a few minutes' working and it is fit for use, even on a cold day, and that without a bucket of hot water, to keep it in working order; neither will it run in hot weather. This I know from experience. This is for old fashioned top grafting.

—Rapid growth makes a mild flavor, slow growth a strong one; therefore, grow vegetables quick and fruit moderately. The exceptions are only where size is valued higher than flavor.

Vinegar for Pickles.—The best vinegar for pickles of any kind, is made by mixing one quart each of vinegar and molassess with five quarts of water, (soft water is the best,) and it is ready for immediate use. Whiskey, on account of its adulteration, is unfit to use in the place of alcohol.

Wine that will not Intoxicate.—The juices of any sound, ripe fruit, may be canned, or put in jugs, and sealed up air-tight, while it is scalding hot, just as we put up canned fruit, and may be kept any length of time, if properly put up. A small bottle of such juice may be opened at any time, and mixed with water and sugar, making a pleasant drink, or wine that is not intoxicating.—*Ex.*

It is advisable to keep fruit preserves in small jars, containing just the quantity you would wish to use at one time, as exposure to the air injures most kinds of sweetmeats. Store in a dry, cool place, and if the jars are put in dry sand the fruit is less likely to ferment.

—In fruit culture, as well as in any other business, it requires tact, energy, and a large amount of perseverence to enable any one to succeed.

A nice Dish.—Apples for immediate use are very nice prepared in the following manner: Take good sized, tart apples, remove the core without paring them, place the apples in a tin pan, fill the holes with sugar, add a small pinch of cinnamon if you like it. To a dozen apples put half a pint of cold water; bake till quite soft. They will not keep well more than two or three days.

Apple Cream.—Boil twelve apples in water till soft, take off the peel, and press the pulp through a hair seive upon half a pound of pounded sugar; whip the whites of two eggs, add them to the apples, and beat all together till it becomes very stiff and looks quite white. Serve it heaped up on a dish.

To Harden Tallow for Candles.—Sometimes an animal gets so fat as to yield tallow too soft to make good, hard candles. When the tallow is placed in the kettle to fry out, sprinkle over it one pound of alum and one pound of saltpetre, pulverized and mixed. Candles made of such tallow will give a clear light and not run.

To Kill Aphides, or Plant Lice.—The veteran pomologist, Thomas Rivers, says: "For aphides of all kinds, in-doors or out, winter or summer, 4 ounces Quassia chips are boiled ten minutes in a gallon of soft water, and while cooling, 4 ounces of soft soap dissolved in it. Many hogsheads of this are used here in summer, and always with effect. Sometimes two dippings of the shoots, or brushings of the under surface of the leaves, are required. This innocuous mixture has superseded filthy tobacco juice and many disagreeable compounds." It would be well to try this upon the aphis that is now so troublesome on the young shoots of cherry and other trees. As the preparation is unexpensive, it could be used on a large scale by means of a garden pump or engine.

Observations respecting Meat.—In cold weather meat is much improved by being kept several days previous to using it. Beef and mutton should be kept at least a week, to render the meat tender; and poultry three or four days. When meat is frozen it should be soaked in cold water to extract the frost before putting it to the fire, else it will not cook well. A thick roasting piece requires soaking several hours to extract the frost. Meat packed in snow will keep sweet as long as the snow keeps from melting. Have a thick layer of snow in the bottom of your tub, or box, then pack your frozen meat, placing a thick layer of snow between each layer of meat until your meat is all packed, then cover completely with snow and over all spread a blanket or other woolen goods. Poultry should be filled with snow before packing.

—When preserves ferment, scald and add one-quarter of a pound of sugar to each pound of fruit.

Spiced Currants.—Five pounds of currants, four pounds of sugar, one pint of vineger, cinnamon, cloves and allspice to taste. Boil an hour, or till it is thick. Nice with meat.

Beet Dressing.—One teacup of vinegar, two eggs well beaten, one teaspoon of salt, one teaspoon of mustard, butter size of a walnut; scald and add half a teacup of cream. If one has no cream, use milk and more butter. Pour over the boiled beets. It is also very nice for cabbage.

Those who claim to have tried the experiment say that scions cut from bearing trees will make bearing trees one or two years sooner than those taken from unbearing trees, whether standard or nursery trees.

—Weeds will grow, and insects will devour while we sleep, and the rain, which we are told "falls alike on the just and unjust," will often interfere with our well-arranged plans; but such things must be expected in all the walks of life.

—In melon culture, a naturally rich sandy loam produces the sweetest and best fruit.

—Fruit culture is just as safe a business as any other; but no one need embark in it expecting that wealth will flow into his hands without seeking it earnestly and perseveringly.

—Fuller says the German Prune can be grown wherever the common plum can be.

Number of Plants to the Acre.

The following is a very useful table for the gardener and orchardist, showing as it does, the number of trees or plants that may be raised on an acre of ground when planted at the distances mentioned.

Distance apart.	No. of Plants.	Distance apart.	No. of Plants
1 foot	43,560	9 feet	537
1 1-2 feet	19,360	12 feet	302
2 feet	10,890	15 feet	193
2 1-2 feet	6,969	18 feet	134
3 feet	4,440	21 feet	98
4 feet	2,722	24 feet	75
5 feet	1,742	27 feet	59
6 feet	1,510	30 feet	48

The plum worked upon the wild plum stock comes into bearing earlier and is more fruitful and more hardy than if worked upon its own stock.

Fruit Trees for Shade.

A correspondent of the *Country Gentleman* thinks that if fruit trees were planted instead of maples, we could have both shade, ornament and fruit. Practical illustrations of the benefits of such a course are often seen. We have in mind two farmers whose land borders on the road. One of them has a nice row of maples, which furnish nothing but shade, and seriously injure his land. The other has a splendid row of apple trees. They furnish shade, are ornamental, and do not injure the land near as much as maples. They also furnish a large supply of valuable fruit. Believing the last example much the best, we would recommend it for imitation. —*Horticulturist.*

If shade be an object, the end would be accomplished more expeditiously, and much more effectually by planting nut bearing trees, such as the Chestnut and the Walnut.

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NEW TIME TABLE.

GOING WEST. Leave Keokuk		STATIONS.	GOING EAST. Arrive at Keokuk—	
2.45 P. M.	12.00 M.	Keokuk.....	4.15 P. M.	6.00 A. M.
4.20 "	1.38 A. M.	Farmington.	2.40 "	4.20 "
4.50 "	2.10 "	Bentonsport.	2.08 "	3.50 "
5.35 "	2.58 "	Douds	1.22 "	2.58 "
6.45 "	4.05 "	Ottumwa....	12.20 A. M.	1.45 P. M.
7.05 "	4.15 "	Ottumwa....	11.55 "	1.30 "
7.52 "	5.05 "	Eddyville..	11.12 "	12.37 "
8.18 "	5.33 "	Oskaloosa ..	10.48 "	12.08 "
9.05 "	6.20 "	Pella.....	10.03 "	11.20 "
9.45 "	7.05 "	Monroe.....	9.27 "	10.37 "
10.10 "	7.35 "	Prairie City.	9.00 "	10.10 "
10.32 "	7.57 "	Woodville...	8.45 "	9.48 "
10.55 "	8.22 "	Altoona . .	8.22 "	9.23 "
11.30 "	9.00 "	Des Moines .	7.45 "	8.50 "
11.45 "	9.30 "	Des Moines .	7.15 "	8.30 "
12.28 A. M.	10.13 "	Waukee	6.33 "	7.48 "
12.47 "	10.32 "	Dallas Cent'r	6.14 "	7.30 "
1.28 "	11.15 "	Perry.....	5.35 "	6.50 "
2.15 "	12.00 m.	Gr. Junction	4.45 A. M.	6.00 "
Arrive at Grand Junction.			Leave Gr. Junction.	

Burlington & Missouri River R. R.

NEW TIME TABLE

GOING WEST. Leave Burlington—		STATIONS.	GOING EAST. Arrive at Burlingt'n	
11.10 A. M.	7.25 P. M.	Burlington..	4.45 P. M.	5.50 A. M.
12.47 P. M.	9.30 "	Mt. Pleasant.	3.09 "	3.48 "
2.00 "	11.13 "	Fairfield.....	2.00 "	2.11 "
3.00 "	12.47 A. M.	Agency City	12.56 "	12.47 "
3.40 "	1.45 "	**Ottumwa**	12.35 "	11.45 "
5.46 "	3.47 "	Albia.....	10.24 "	9.45 "
8.30 "	6.35 "	Chariton....	8.15 A. M.	7.00 P. M.
10.52 "	9.10 "	Osceola.....	5.43 "	4.14 "
12.50 P. M.	11.15 "	Afton.....	3.45 "	2.02 "
2.20 "	12.50 P. M.	Cromwell...	2.20 "	12.40 "
3.52 "	2.21 "	Corning.....	12.48 "	10.48 "
5.12 "	3.30 "	Villisca.....	11.25 P. M.	9.30 A. M.
Arrive at Villisca.			Leave Villisca	

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Jan. 1, 1869—d1y.

THE WESTERN POMOLOGIST.

Pomology, Gardening, Forestry, Horticulture, Rural Architecture, Bees.

Vol. I. DES MOINES, IOWA; LEAVENWORTH, KANSAS, FEBRUARY, 1870. No. 2.

MARK MILLER,
Editor and Proprietor, - - Des Moines,
J. A. NASH, Assistant,
DES MOINES.
J. STAYMAN, Leavenworth, Kansas.

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Introduction

In introducing ourselves to the readers of the POMOLOGIST in the capacity of Assistant Editor, it will be expected that we are able to present some new matter, or introduce old matter in a better and more acceptable form, but when neither is accomplished we cannot help but look on the work as a failure. We do not claim to be able to compile or prepare what has been previously said or written and make it more intelligible or acceptable, but we hope to be able to give much original matter and condense previous facts into general principles, thereby giving certainty for uncertainty and facts for fiction. The POMOLOGIST is not designed to take the place of older and perhaps more able journals, but to supply a new demand which is indispensable—if we wish to make any proficiency in fruit growing, which has been in doubt and obscurity so long.

We do not expect to be exempt from the ordeal of criticism, neither do we desire it, for whatever is not absolutely certain must be placed in doubt, and the sooner the public know the facts the better. If the POMOLOGIST but causes the reader to think before he acts, it will save much time and expense in a pursuit which has disappointed the hopes of many and blasted their energies for ever.

We do not think the difficulties of fruit growing unsurmountable, but for the want of correct knowledge of the character and habits of different varieties and species of fruit, their laws of growth, development and maturity have been overlooked. Classifying all under the same conditions, we have been disappointed and have groped our way slowly but surely to that point of success which we hope to be able to present to the Western fruit grower.

To the fruit growers and gardeners of Kansas, we ask your support and co-operation in a work devoted to your interest. We have never had an opportunity to express our views even upon the subject. Hence, we do not only give you a chance, but offer you a place and ask you to give your views freely. Any question you wish answered we hope to be prepared to do through the POMOLOGIST without delay, within our sphere.

We should be happy to receive specimens of all new fruits worthy of cultivation, to make drawings of them and describe the fruit, &c.

J. STAYMAN.

Leavenworth, Kansas.

For the Western Pomologist,

Western Missouri as a Fruit Country.

ED. POMOLOGIST:—I shall endeavor to keep you posted in regard to pomological progress in this portion of the Missouri valley, and shall greet the WESTERN POMOLOGIST with special interest. It fills a want of fruit growers, and must be a success.

We hope soon to be connected by rail with Des Moines. The Missouri Valley Railroad, heading towards Des Moines, is now completed to Marysville, within twenty miles of the Iowa State line, and will soon be running to that point. We hope our Iowa friends will complete it to Des Moines, and thus we shall be neighbors.

This portion of the Missouri valley is the home of the apple. The soil is a rich, light mould with marly clay subsoil; and we have moisture sufficient to grow fruits of good size, and soft, dry breezes in August, September and October, that perfect the flavor of our fruits. The Missouri river is a long ribbon of water, winding through vast grassy plains, bordering on what was formerly called the American desert, which is now covered with nutritious grasses, which become very dry in the Fall; and the winds blow almost continually from the southwest in the latter part of Summer and Fall. This mellifluous influence, in conjunction with our excellent fruit soil, enables us to produce apples unsurpassed in weight, beauty, and flavor. This section seems to be favorable to the production of new varieties, which the report of the Missouri State Horticultural Society, at their last meeting, fully shows. We have some that far eclipse the Baldwin and Newtown Pippin in their palmiest days. The most delicious fruits of the Old World are grown in the Barbary States, over which the tempered winds of the desert blow; and our Lord planted the first garden of fruits upon the Assyrian hills, watered by the Euphrates, over which "spicy breezes blow from Araby the Blest." So the valley of the Missouri, bordering the dry and airy plains of the West will yet produce the most delicious fruits of America.

I herewith hand you an item clipped from a report of the last meeting of our Missouri State Horticultural Society, which may interest some of your readers:

"The following new varieties of long keeping apples were exhibited before the Missouri Horticultural Society, by Geo. S. Park, of Parkville, Platte county, Missouri:

"Park's Keeper"—An excellent variety; retains its flavor till June or July. A fine large red apple, resembles the "Large Striped Pearmain," the "Missouri Superior," and "McAffee Nonesuch," but is found to keep longer. Is valuable for commercial orchards. Sells for 50c a bushel more than the "Genitan."

"Lawver."—Just introduced. A most beautiful apple; large, dark red; fine acid—rich cranberry flavor. Saleable and profitable.

"Goodyear."—A seeding of the "Ben Davis;" a little better than the "Ben Davis." It is an early and prolific bearer, and keeps till June and July.

"Ella Park."—A dark red apple, medium size, a brisk acid. Keeps till new apples come in yearly. An apple of great promise.

Also a new seedling, just discovered, that keeps two years; promising well—recommended for trial.

One was exhibited that had been kept in perfect condition over the last summer. Also, Mr. Park's plates of "New York Pippins," "Yellow Bellefleurs," "Campbellists," "Newtown Pippins," and "Genitans," were unsurpassed; showing that Western Missouri is second to no section in fruit growing. It seems to produce new varieties that are unsurpassed in beauty and flavor, with more specific gravity than the old varieties."

GEO. S. PARK.

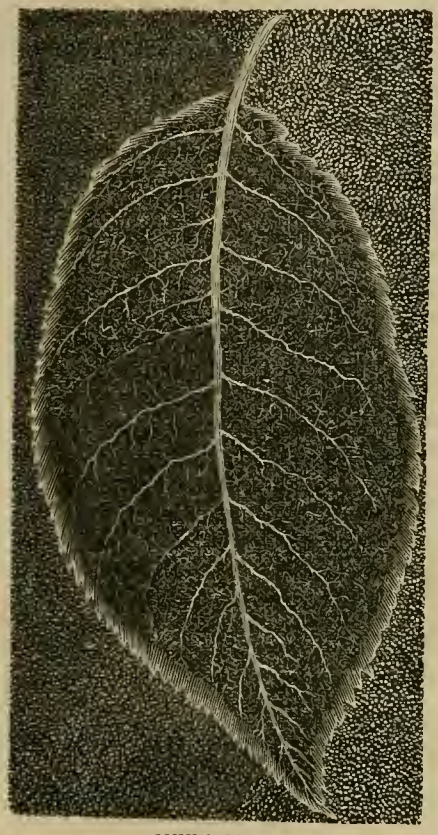
Parkville, Platte County, Mo.

REMARKS.—As many of the old, standard sorts of apples show signs of degeneracy, it stands the pomologists, not only of this grand fruit growing region of the West, but of the whole country, to be looking after and spying out new and valuable sorts to the fruit grower.

For the Western Pomologist.

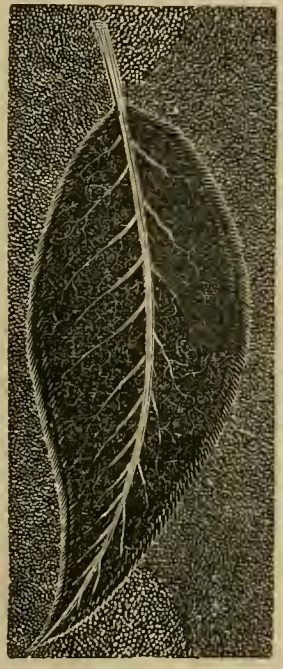
The Miner and Chickesaw Plums.

Perhaps in our whole list of hardy valuable fruits there is not one whose history and even place in botany is involved in more doubt than that of the Miner Plum. Its remarkable productiveness, its extreme



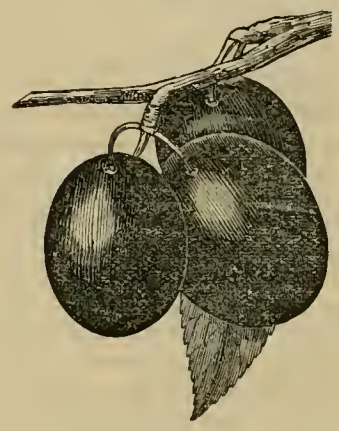
MINER LEAF.

hardiness, and excellent quality of fruit has so commended it to the people, that its spread from neighborhod to neighborhod, in Wisconsin and Northern Illinois and Iowa, has been exceedingly rapid. Like all fruits disseminated in this quiet way, it has obtained different local names, the best known of which are Townsend, Hinkley, and *Miner*. There are many reasons for believing the latter to be the original and most correctly applied name. A certain Mr. Miner brought this plum to Lancaster, Wisconsin, some sixteen years since, with the statement that it was produced



CHICKESAW LEAF.

from pits planted by him of the Yellow Egg or Magnum Bonum Plum a number of years previous, and that it had been disseminated alone from the sprouts taken from the original seedling tree as planted by him. A strong confirmation of this story is found in



CHICKESAW PLUM.

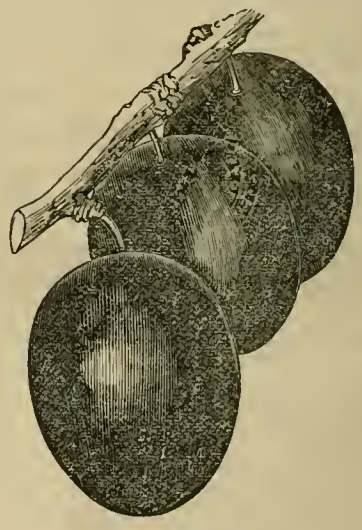
the habit of growth of the Miner, and the character of its fruit. The Yellow Egg is an American Plum of extreme hardiness, and is a variety that has shown a strong tendency to run into many *sub-varieties*, similar in many characteristics to the Miner. We see it often stated in our journals that the Miner is simply a variety of the Chickesaw. This statement is wholly absurd. The extreme difference in the size, shape, and seprations of the leaves of the Miner and Chickesaw plums are shown in the annexed cuts. The color and net veining of the leaves are far more distinct than can be shown in this connection. And this extreme and entire difference from the Chickesaw extends to the whole tree and to its fruit. I can think of no feature they have in common except it be in the tripple buds peculiar to the twigs of both. I am sorry to say that on account of this peculiarity in the arrangement of its buds many thousands of cions have been sent out by ignorant or unscrupulous parties, and grafted and sold to the people as Miner plum. The cions of the Miner are stouter, lighter in color, and have none of the uncultivated look peculiar to those of the Chickasaw. The true Miner in its leaf, color of bark and young twigs, habits of growth, furrowing of its fruit pits, and even in taste of fruit, when cooked, more nearly approaches the peach than any plum with which I am familiar. So marked is this appearance of tree in nurseries that parties have often wondered "what peculiar looking kind of peach" I

2 1

1—Miner cion.
2—Chickesaw cion.

was growing in nnrsery. Like its supposed parent, the yellow Magnum Bonum, the Miner is peculiarly a valuable culinary sort. Its skin, unlike our wild plums, and most cultivated varieties, when cooked, becomes a paletable pulp. When made into sauce it has an unmistakable *peach flavor*, which has been universally remarked where this plum has come into general use.

Wherever introduced in Wisconsin, Northern Illinois or Iowa, and in bearing, it has become popular and in demand for planting, mainly on account of its certainty of producing a crop. Even our wild plums under culture are liable to be destroyed by the curculio. And the culture of the cultivated varieties, with the exception perhaps of the Lombard, has become almost hopeless on account of the ravages of the "little Lurk." At first it was thought that crops of the Miner were obtained when all others failed on account of some peculiarity of the skin making the fruit curculio proof. Later observation, however, has demonstrated that



MINER PLUM.

its escape from this pest was mainly on account of its peculiar lateness in blossoming and in ripening its fruit, it being fully three weeks later than any of our wild or cultivated sorts. The main crop of the insects seem out of the way at the time the Miner gets large enough for puncturing, and the plums that are punctured develop so fast after the warm weather is fairly inaugurated, that the deposited eggs seems in most cases to be fairly drowned out and "sloughed off" by the abundant sap. The bearing habits of this plum, combined with its peculiar value for culinary use, will soon make it an everywhere common praiaie fruit, if no new insect or disease is developed to change its present habits.

JOSEPH L. BUDD.

Shellsburg, Iowa.

—The first step towards self-improvement is, to leave off "crying over spilled milk."—Let the past go, and bend every energy to the improvement of the present.

For the Western Pomologist.

Soil and Situation for Grapes.

BY DR. J STAYMAN, LEAVENWORTH, KANSAS.

In successful vineyard culture much depends upon the soil, location and climate, as may be seen in the quality of wine from different districts and vineyards; but in garden culture we have but little choice to make, for we have to plant our vines where our gardens are or do without them. Although there is a difference in soil, location and climate, yet the grape is adapted to a wider range of country perhaps than any other fruit. We have found it growing wild and bearing profusely on the river bottoms overflown by the high spring and summer freshets, in the ravines and clefts of the rocks, on the gentle slopes, on the high hills and mountain ranges variously exposed, in a humid and arid atmosphere, in the forest climbing the highest trees and in the groves and thickets running over the brambles and bushes, and on the border of the open prairie without any support except the tall grass.

What other fruit can we find growing wild so luxuriantly and bearing so profusely over such a vast range of country and diversified soil and climate as from Maine to California, and from Canada to the Gulf of Mexico.—Indeed, it may be said if any fruit is adapted to general cultivation, it is the grape, seeing its extensive natural range.

Although the grape is adapted to a diversified soil and climate, there is much difference found in the quality of the fruit, depending upon local conditions. Therefore we should select the most favorable situation we have. Any soil that will grow wheat will grow grapes within the range of sufficient heat, but it should, however, be remembered that all locations are not equally adapted to the same varieties, for it requires a certain length of season to mature and perfect each variety. For garden culture, plant on dry, well drained soil, if you have such, if not it will pay to drain it. If flat, elevate the ground about a foot high and four feet wide and plant on top of the elevation. Select an open exposure towards the east, south or west, if you have such, but if other conditions are favorable any exposure will produce grapes abundantly.

While we admit garden culture successful in almost any soil or location, it is very different in vineyard culture, either for market or wine, for if we do not select a good location we cannot expect to compete with those who do, in neither fruit or wine. A location that will produce good wine may produce good market fruit, but it does not always follow that a location for market will also be equally good for wine; for early maturity, large size and beauty are more important for market than late maturity and fine quality. In selecting a situation for market, it is necessary that we are in proximity to a good and permanent market. At such points we have not always got good locations; but where there is railroad or water facilities for transportation fifty or even one hundred miles from market, with a superior location, would be preferable than near market with a medium location. In planting, particularly for market, we should aim to have a warm situation, that our fruit will mature early, evenly and perfectly, for the earliest good fruit commands the higest price. Therefore a few days in advance will very much enhance the value of our crop, this being a natural advantage will soon pay for the best location and be a permanent value thereafter.

We should also guard against sudden and excessive changes of temperature, as they subject us to early and late frosts, which may very much injure our crops. By locating in proximity to large bodies of water we obviate excessive changes and are not subject to early and late frosts, therefore our crop is more certain, but it does not mature so early and consequently is not so valuable for market. But if we select high elevations, with east, south or west exposures, in proximity to deep and wide valleys, we both hasten the maturity of our fruit and guard against excessive variation of temperature. That there are natural advantages in locations may be seen in the early maturity and superior quality of the same variety of fruit at different situations.

It is a well established fact that southern slopes of high hills, or elevated benches with a light soil well drained and clay sub-soil, whether the surface is composed of humus, sandy loam or calcareous earth, are the best locations, and if the soil is rich enough to produce good wheat, it is sufficiently rich for grapes, and that lime, marl, ashes, bone-dust and leaf-mould are good fertilizers when the land is not rich enough. Very few locations in the West require such applications, and a large proportion would be materially injured thereby, particularly in Kansas, Iowa and Missouri.

It may be expected by some that we will point out the best situations to produce good wine, but this subject embraces so many important conditions that we hardly feel able to do the subject justice in a short essay like this. For it should be remembered, to make wine successfully and profitably we should be able to compete not only with our neighborhood, but also with the best wine districts of this country as well as Europe. It may, however, be observed, that it requires a specific amount of heat to elaborate and develope a due proportion of sugar in the grape, and that whatever tends to the thorough ripening of our fruit will add to the strength, quality and aroma of our wine. That the best conditions are warm soils and dry, elevated, sunny hill-sides in a temperate climate, within the zone of sufficient heat and diminished moisture, particularly from seeding to the maturity of the grape, are of more importance than the early maturity of our fruit or proximity to market. It may not be generally understood that the grape requires a mean temperature of 52 degrees before it foliates, and a definite amount of heat from thence to its maturity. That all the variations in ripening depend upon location and moisture, or, in other words, the difference in the ripening of the same variety depends upon the amount of heat, light and moisture the grape receives; and that the richness and quality of the fruit depends upon the concentrated heat and diminished moisture from the commencement of seeding to maturity. That the Concord grape requires from foliation to maturity about 9,000 degrees of heat. To illustrate these facts, we will give examples of observations made at different seasons and places for the last five years. We have the Concord grape growing at different elevations, one about 200 feet above the other on a bluff. On this elevation the Concord grape ripened from eight to ten days earlier than below. To ascertain the cause of this difference, we kept a thermometer at both places and observed the difference in the temperature. We found a daily mean of three degrees, and at sunrise, six degrees higher temperature on the bluff than below, which the following record will show:

FROM FOLIATION TO MATURITY.

	Days.	Deg.	Heat.	Aug	Rain.
1865	133	67.9	90.72	15	21.00
1866	138	67.2	93.19	20	28.33
1867	134	67.1	90.44	17	20.34
1868	133	68.0	90.70	15	18.41
1869	144	67.5	97.34	25	31.62
1868	127	71.0	90.70	8	15.91
1869	132	70.5	93.55	15	31.62

FROM SEEDING TO MATURITY.

	Days.	Deg.	Heat.	Rain.
1865	45	75.2	34.59	16.72
1866	46	74.7	34.76	12.07
1867	45	76.7	34.53	6.89
1868	45	77.3	34.96	10.25
1869	45	77.2	34.74	12.41
1868	43	80.3	34.52	7.75
1869	43	80.2	34.48	12.41

From the above table it will be seen that in seasons of the greatest rain it required more heat to mature the grape. Had the rain, light and sunshine been the same, we have but little doubt the result would have been very nearly alike. If we examine the temperature from seeding to the maturity of the grape, we find considerable difference, but in the amount of heat for the same period, there is but little difference, because the rain and sunshine during that time was very nearly equal. But the greatest difference was in the quality and perfection of the grape, and in the strength and aroma of the wine, corresponding exactly with the high temperature of that period.

Address of PRESIDENT MATHEWS, *at the Opening of the Fourth Annual Meeting, January* 11, 1870.

Gentlemen of the Iowa State Horticultural Society:—Permit me to express my happiness in again meeting you at this our fourth Annual Convention. It is a source of great gratification to meet horticultural friends from different portions of the State on an occasion like this, where we may renew social relations and friendly intercourse, and reciprocally communicate the labors, experience and results; and successes or mishaps which may have attended our efforts during the past year. To those who take a *bona fide* interest in horticultural progress, an opportunity like this, is "a feast of fat things" such as none but the devotees of *Pomona* can truly appreciate.

While we should be devoutly thankful to the *Great Giver*, for the general prosperity, health and happiness which have been so abundantly manifested throughout our beloved State since the last meeting of this society, the lessons of the season should not go unheeded, or pass away as an ephemeral illusion.

There has never perhaps been a year in the history of Iowa, more pregnant with useful instructions to the pomologist, than the one just past. As far as I have been enabled to examine orchards and vineyards, many varieties of the fruits therein, were seriously affected by continued wet weather.

Mildew, scab and rot, were the results.

In the county where I reside, the Red June apple, a pretty general favorite, was so scabby as to render it almost wholly worthless. White Winter Pearmain, (root grafted), Fall Wine, Bevans Favorite, Rome Beauty, Rowles Jannet, and a few others were a little better; while Williams Favorite, Red Astracan, Cole's Quince, Jonathan, Roman Stem, Wine Sap, Monmouth Pippin, Seek-no-Further, etc., were never finer.

By these observations and results, we have a tolerably clear indication of the various effects of wet weather, upon different varieties of the apple. The injurious consequences to the grape crop, were still more marked and fatal. Out of some seventy kinds which fruited with me, not more than nine or ten varieties, were entirely exempt from either mildew, scab, or rot; so that they were either a partial or total failure.

To speak of the precise way in which each kind was affected, and the extent of the injury, will not be expected in an address like this, which I intend shall be as brief as the nature of the case will allow. In the course of such discussions as we may have on the different fruits, I shall be happy to answer any special interrogatories on this subject, if my friends shall think it worthy of any further attention.

While the bad behaviour of any variety of fruit in an unsual season like the one of 1869, may constitute no sufficient grounds for its future rejection, many who cultivate fruits may be anxious to know, and should be informed if they require it, what kinds, if any, can be relied upon for a crop every year, or if biennial bearers, every alternate season, without regard to climatic influences, isothermal lines, or adverse conditions of weather.

As the great object of this organization is, as far as possible, to diffuse *experimental* knowledge upon fruit culture and its kindred pursuits, amongst the people of Iowa, we may as well enquire a little, what we have done in the past, *practically*, and what we are likely to accomplish in the future? To act understandingly, and with a well founded anticipation of good results, a few primary and fundamental matters must be duly considered

I believe it is a conceded fact among our fruit men generally, that from the peculiarity of our soil, climate and seasons, we must of necessity adopt modes of culture, as well as lists of fruits, almost peculiarly our own Many varieties which succeed well, and are highly prized in other States, and perhaps in latitudes comparing with ours, are worthless here. Modes of cultivation recommended by our authors, and practiced and approved elsewhere, may be fatal with us, and are generally to be greatly modified, and even sometimes totally rejected. Nor can there be an entire uniformity in these respects, in different localities in Iowa.

I apprehend, however, that these discrepancies, or different conclusions of our Iowa pomologists, arise to a considerable extent, if not mainly, from causes which I fear we have not yet carefully and thoroughly investigated, and to which I shall briefly call your attention.

As yet in the West, we have given but little consideration to raising fruit from seed; perhaps not enough, but as our country is new, and there is a great demand for good fruits, many of which succeed well with us under proper circumstances, we depend upon budding or grafting, either in top or root. Here, then, is the great starting point, and if, when the budding or grafting is in the top we fail to have a hardy and healthy stock, we shall have made a mistake which we can never remedy, and which besides resulting in disappointment and disaster in the particular case, will eventually lead to *diverse opintons*, and interminable confusion.

We as a Society, have already recommended that certain varieties of the apple, to succeed well in Iowa, should be top budded, or top grafted. So far so good. We have in this thrown out to the public an idea, but one which is exceedingly indefinite, and without any instructions as to the principle, mode or manner, greatly calculated to mislead. What stocks shall we use? This question naturally suggests itself to the mind, and with all culturists, or at least with fruit men generally, the answer would be, "seedling stocks." But *here*, if we take them in the aggregate, without any limitation or explanation, is the *breaker* upon which our theory is dashed to pieces. One orchardist tells us that he "has tried top grafting, and it is a failure." Another has tried it with the same variety and pronounces it "a decided success." Both are men of equal experience, and both equally entitled to credit; and in short, both are correct, and why? Because the one happened to have a seedling stock which was too tender for our climate, and the stock being bad, the tree necessarily failed. The other being more fortunate, had grafted upon a hardy and healthy stock and was of course entirely successful; and this brings me to a fact which cannot be too strongly urged upon the attention of every fruit culturist, that seedling stocks are just as likely, and perhaps in a much greater proportion, to be unhealthy and tender in a soil and climate like ours, as the known varieties. A seedling may pass apparently unharmed through two, three, or four winters, which, however, are undermining, and by degrees destroying its vitality, till at last it yields to the destructive influences operating upon it, and dies out; and of course if grafted, the top dies also. This theory I have demonstrated in my own grounds. I have quite a number of seedlings standing in the rows where planted out, now six, seven and eight years old, that is, the survivors; and which I top budded three and four years ago. While all have had the same chance, and the same treatment in every respect, some are as healthy as any trees I ever saw, making as fine heads as I could wish, and others top budded with the same varieties are an utter failure, by reason of disease developed in the stocks since they were budded.

I believe that to take the best lot of apple seedlings to be found, at say one year old, two-thirds of them at least would die out before being old enough to top bud, or fail afterwards.

Now admitting all I have said, I may very properly be asked how this difficulty is going to be remedied? The mere statement of the fact, it may be said, does not obviate the dilemma. That is true, and I shall now undertake to remove the difficulties out of the way, so that whosoever will, may have an orchard of healthy, hardy, and handsome trees.

To accomplish this, there is in my judgment but one practicable way, and that is, to first root graft with a variety known, not only to be *perfectly hardy*, but a straight and fine grower like Ben Davis Bevans, Favorite, or some of the finest growers among the crabs now being introdnced so extensively. When these are two years old from the root top bud or graft the main stem about four feet above the ground; and when the buds or grafts thus put in, have had one or two years growth, the trees will be ready, to transplant into the orchard, and being as they should be, planted six inches deeper than in the nursery rows, will leave the main stem of each, from the ground to where the top branches out, three feet and six inches. By this mode of culture, you gain at least two valuable points.

First Having top worked entirely with kinds not only known to be hardy, but prolific, every tree in your orchard can be depended upon as a lucrative investment.

Second. You have an orchard the symmetrical and handsome appearances of which, would in the estimation of men of taste, add from fifty to one hundred per cent to its value.

In short, by this method, you could have in all respects a *model orchard*. In top working in the manner I have described, you are always on the safe side, for many kinds will only answer with us, worked in this way, whereas there is not a variety so far as I know, which succeeds by root grafting, that will not do as well when top worked.

The only objection I can conceive of which might be urged against this mode of propagating trees, is, that as there will have to be more work bestowed upon them, they will cost more than those raised in the ordinary way. I admit that they will cost from twenty to twenty five per cent more; but who that wants a good orchard, with every tree a perfect specimen, will stand a moment on the difference in price between them and the trees of all shapes, with heads formed high and low, which have been, and are now being sent out from our nurseries.

When this system shall have been adopted, it will mark an *era* in our pomological advancement, and will at once and forever set at rest the question whether Iowa is, or is not, "a fruit country," for we can then have no failures in the raising of trees, except such as result from accident or carelessness.

Next in importance to the mode of successful culture, which I trust I have made quite satisfactory, is the proper protection of fruit trees after we have them planted and in bearing condition. We are fortunately so situated that the fruits very seldom suffer by spring frosts. Our springs are backward, but when there is once a cessation of frosts, they scarcely ever return until the fall season; and the change in the spring from frosty to mild weather, usually occurs before the fruit trees are in bloom. We frequently however, have severe winds accompanied with rains for two or three days at a time, about the period of blossoming, which by the severity of the gale for such a length of time, driving the rain drops against the flowers, destroy their fructifying power, and no fruit is formed; or, if these adverse elements, (always ominous of mischief,) make their advent a little later, when the fruits are formed and yet in a tender

state, the consequences are none the less calamitous.

Sometimes it occurs too, that a steady wind storm from the south-west, for forty-eight hours or more, with clear weather and hot sunshine, occasions almost a total loss of the crop, on the sides of the trees from which the storm approaches. One or more of these dissters occurs so often in exposed situations, that it is a matter of no ordinary consequence to find out a remedy if we can.

Belts or groves of deciduous forest trees around the orchard may do some good, although as a general thing when their protection is needed most, they have only their naked and denuded branches with which to ward off the dreadful storms. Have we not a much more effectual remedy, which will be fully justified too, even in point of economy, if we compare the loss of the crops for an indefinite number of years, with the trivial outlay for protection by planting evergreens? These are a never failing shelter, not only against the storms of spring and summer, but the rigorous blasts of winter. I have no question but in this country it will doubly pay any one who sets out an orchard, to plant a belt of large growing firs, spruces or other evergreens around it. With proper treatment these grow much faster than is generally supposed. I can show quite a number of specimens planted out in my grounds from ten to twelve years, several of which are from twenty-five to thirty feet high, and the diameter of their branches from one to five feet above the ground, not less than twelve to fourteen feet, and some varieties so compact that they are almost impenetrable to bird or beast. The planting of these, including the requisite care for the first few years, (during which they should not be neglected,) will require but little more labor than will be necessary to transplant from the forests, and grow our deciduous trees, if we give such treatment to the latter as will produce a healthy and thrifty growth.

I believe too, that the cheapest evergreens for the object proposed, would be nursery grown, and stocky trees about two feet in height, and which have been at least twice transplanted. One such specimen with the compact top and fine fibrous roots produced by the several transplantings, will be worth more than ten of the same age taken from the pine forests. For my own use, I would rather pay twenty cents a piece for the former than two cents for the latter; and whoever will try the experiment as I have done, will come to the same conclusion, and that too, after much loss and years of disappointment. At this rate let us see what it cost to procure the trees for the protection of an orchard of ten acres, on all sides, supposing it to be laid out in a square form. The distance around it would be one hundred and sixty rods. Two evergreens to the rod would be quite sufficient, and in eight to ten years would unite and form a solid mass six to eight feet from the ground; and in fifteen years would furnish an impenetrable wind break fifteen to twenty feet high, as the branches thicken from year to year, in something like a geometrical ratio.

It would require three hundred and twenty trees, which at twenty cents each, would amount to sixty-four dollars, but add to this eleven dollars supposed average cost of shipping the trees from the nursery, and we have the sum of seventy-five dollars for the number required delivered at the orchard.

There are few, however, who plant an orchard of this size, and for any less quantity of ground, the calculation is easily made for the number of evergreens needed. Besides the absolute utility of these evergreen belts, or screens, there is nothing I can conceive of which would add so much to the beauty of a farm, or if adopted generally, to the charms of our prairie country, and prairie homes, which are already so universally admired by all persons visiting the State.

Next to the evergreens for protection, I would give the European larch a decided preference, because it will afford a shelter from the storms equal to any other deciduous tree; it is very graceful, equal in beauty during spring, summer and fall, to any of the pines or firs; the timber is reputed to be equal in durability to the cedar, for posts or any other such use, and it grows as fast as the Silver-leafed or Soft Maple, which I should place next on the list for beauty and utility.

I have a tree of this variety of Larch, standing near my house, which I planted there in the spring of 1859, the body of which measures at this time thirty-five inches in circumference three feet above the ground, and it is nearly forty feet high. They can be procured when small, at a very reasonable price. I think that in Iowa, the cultivation of this timber can not be urged too strongly, and I hope this Society will give it that consideration, which the importance of the subject demands.

Although I may have already trespassed too long upon your patience, I can not refrain from adding a few remarks upon the cultivation of a fruit deservedly popular and desirable; and yet in many portions of our country so fickle and precarious. I mean, of course, the pear, which when well-grown and matured has hardly a rival among the many attractive and luscious fruits of the world.

In some countries it is perfectly at home, subject to no vicissitudes or uncertainty of production. But it is otherwise in most parts of this continent, California and Oregon being perhaps the only portions where this fruit is subject to no disease or failure. Its precariousness is almost unaccountable, when we reflect upon its remarkable longevity and productiveness in other lands, exposed to all the severity of climate and season, incident to our country, and even in more northern latitudes than any portion of the United States. From these facts it would appear that hard freezing alone, has but little to do with pear blight, the great draw-back on pear culture with us.

The pear tree, in its wild state, is found in England, and abundantly in France, as well as other parts of Europe, not excepting Russia as far as the 51st North Latitude, and is remarkable for growing well in almost any situation. Mr. Louden says that "when the "cultivated kinds are grown on their own "roots, or grafted on a wild pear stock, they "are much longer live than the apple," and "that in a *dry soil* it will exist for centuries, "and still keep its health, productiveness "and vigor."

To find out the cause of the malady which makes it as a general rule, a short lived tree with us, should, as I trust it will, enlist the zealous and unremitting co-operative energies of all fruit-growers in the country. Shall it be said much longer that *Yankee* ingenuity has been exhausted, without being enabled to cultivate successfully a tree, which can withstand the coldness in the heart of Russia, and live to an extreme old age?

It may be said that the failures result from a want of adaptation, or rather, that the pear being a native of a foreign country, when brought to this, so great a distance from its primitive and congenial abode, will not adapt itself to the surrounding circumstances in its new home, by reason of some law of nature, which she has never seen fit to disclose. But I apprehend that *this* will not do, for in portions of this continent, (California and Oregon previously alluded to,) the pear although transplanted directly from a foreign soil, succeeds admirably. There is no portion of the globe where the tree is more healthy, and where finer specimens of tree and fruit are to be found.

Some argue that "our hot suns in the summer occasion the blight," but this will no more comport with the facts than the previous theory, for our suns are surely no hotter than those of California where blight was never known.

If we say our seasons are too dry, we are confronted with the same difficulty, for our seasons are not near so dry as those of California. Or, if we say that our seasons are too wet, we are at once met and overcome with the fact that in Oregon they have a far greater amount of rain than in Iowa. Indeed this is so proverbial, that some letter-writer has facetiously said that "in Oregon it rains about thirteen months in the year."

Without proceeding farther to enumerate, I may safely say that no *separate* theory yet promulgated on this subject, has resulted in any settled convictions or conclusions, satisfactory to the public mind; and yet I am quite confident that in the multitudinous experiments which have been made by horticulturists throughout the country, some useful and important practical lessons have been suggested, and which, if we give them our serious consideration, will lead to beneficial results.

We have the positive assertion of substantial and reliable horticulturists, that they have checked the blight, saved their trees, and ate of the fruits for years, by watching closely, and upon the first indications of the malady, cutting off the branch or branches affected, entirely below the part diseased; but we must bear in mind that no one claims any material benefit from amputation, after the disease is fully developed, and has therefore diffused its deadly poison through the whole tree. This is the remedy recommended by Mr. Thomas in his "American Fruit Culturist." He remarks, however, that "*this remedy cannot be effectual unless promptly and fearlessly applied.*" That "*many cultivators in fear of mutilating their trees, do not cut low enough, and leave the seeds of death remaining in the tree.*" He also maintains, that "*the disease is contagious,*" and that every excission, of the limb, or parts taken off, ought to be forthwith committed to the flames; and adds that "*two contiguous neighbors had each a large pear orchard; one of them neglected all attention, the other spent ten minutes daily in the examination of all his trees, and in cutting out freshly diseased limbs. The former lost many entire trees; the latter saved every one, and kept his orchard nearly clear.*"

It will not be denied that Mr. Thomas is very good authority.

My preference, however, is entirely in favor of an antidote, if one can be found. Leaving out of the question some experience of my own, which I shall mention. I have some high authority for saying that this malady can in a great measure be prevented. I remember well that our great American pomologist, the lamented A. J Dowing, while conducting the "Horticulturist," stated in that paper that he "had preserved his pear trees from blight by wrapping the main trunk and large branches during the winter months, with straw." This practice is upon the supposition, not that the freezing alone injures the tree, thereby causing blight, but upon the idea that it results from a combination of causes, which are principally a low temperature, succeeded immediately by bright sunshine; and *this*, from actual observation and experiments for several years past, I believe to be in substance, the true doctrine.

About thirteen years ago, I planted out

some sixty or seventy pear trees, fine specimens of standards and dwarfs, in the grounds where I now reside. They were in perfect health, and just imported from France where blight is unknown. In some five or six years, they were all dead with blight except one, which I had planted on the north side of a Silver-fir, set out the year before. The two trees grew up together, and the branches for four or five years have been interlocked. The fir is now about twenty-five feet high, and the pear fifteen or sixteen. This tree is on quince stock, and the only one left of my original planting; is quite healthy, bears an annual crop; every alternate year a heavy one.

Five years ago last summer, my attention was called to a very nice and healthy looking row of pear trees in my nursery, most of them then fruiting. Near to, and north of this, were three other rows, some of which were dead, and the others badly diseased. The inquiry was made of me at the time, "why one row appeared so healthy, and the others were looking so badly?" I was puzzled what answer to make, but on a little reflection it occured to me that the mystery might be solved. The first-mentined row was near to, and on the north side of a row of Arborvitæs, the latter growing very compactly, being considerably taller than the pears, and so shading them that the rays of the sun could not touch their trunks, except for a short time in the mornings and evenings. The other rows were out from the evergreens in the open grounds, and had not the benefit of their shade.

I may state that there were several varieties in each row. The more I reflected about the circumstances, the more I was inclined to believe that I owed the health of these trees to their contiguity to the Arborvitæ hedge.

In the fall of 1867, being about to thin out the evergreens, I transplanted about twenty of the dwarf pear trees in the grounds around my dwelling. They were transplanted with great care, and well mulched for the winter.

The next season, (1868) the most of them bore a small crop of fruit, and the past season (1869) every one produced a good crop, matured its fruit well, and all appear now perfectly healthy. This, though on the same principle. (shading the stocks and larger branches from the winter sun,) is, I think even better than Mr. Dowing's system of wrapping with straw, on account of the warmth and protection of the evergreens to the roots, as well as to the tops, of trees planted near to them. There is, also, another advantage, which is, that they are secured from from the hot suns we have at the season when the blight occurs, and which are undoubtedly the proximate cause of its development.

I believe I have on a previous occasion referred to the circumstances which I have now related, or a part of them at least, but it being a subject of such vast import, and being more and more satisfied by a continuation of this experiment, that it will at least prolong the existence of the trees, I could not consistently with my responsibilities to you, and the people for whose benefit we are laboring, forbear alluding to it again, in hopes that if the proposed preventive, shall not upon further trial be found altogether effectual, it will lead to investigations and experiments by more skillful culturists than I claim to be, resulting in a signal victory over the enemy.

I have endeavored to make my remarks plain and practical, indulging in no mere speculations, or conjectural theories, which I think, in our researches after knowledge, ought to be ignored as much as possible.

Sensible that I have already taken up too much of your time, permit me in conclusion to thank you for your serious attention and patient indulgence, in listening to an address more prolix than I at first intended.

Entomologist

The Progress of the Potato Bug.

The following is from the American Entomologist:

An interesting account of the Colorado Potato Bug (*Derephora 10-lineata*, Say,) is given in some of the former numbers of the American Entomologist. It states that, starting eastwrrd from the Rocky Mountains in 1859, this insect had already in 1868 reached the southwest corner of Michigan, and Danville in Indiana, about the center of that State; making its average annual progress about 62 miles. Another writer says that "the southern columns of the grand army lagged far behind the northern columns." Lass summer (1868), to my own knowledge, it had reached the south shore of Lake Superior, northwest corner of Michigan, where it abundantly manifested its presence in its usual destructive attacks on the potato. I have since learned that between the Potato Bug and the drouth of the early part of that season, the crop was well nigh ruined in that region. I shall not easily forget the appearance of one potato field I witnessed, on the lake shore, in northeastern wisconsin, which was nearly covered with these pests in both the larva and perfect states. The lazy Indians, to whom it belonged, idly lounging in the sun, and probably ignorant of the noxious character of the insects, made not the slightest effort to stay the work of destruction.

Its march last summer (1869) through Michigan has been duly recorded, though, owing to various causes, not attended with the dire consequences anticipated, as the price of potatoes in Detroit would go to show, they selling here last Fall at from 35 to 40 cents per bushel.—*Henry Gillman.*

Toads vs. Bugs.

We make the following extracts from some passages in Fogt's book "on noxious and beneficial animals," which are quoted at full length in the fourth number of *Le Naturaliste Canadien.* For the benefit of the American reader, we translate from the original French.

"A remarkable fact has lately been published in the newspapers. There is actually a considerable commerce in toads between France and England. A toad of good size and in fair condition will fetch a shilling (twenty-five cents) in the London Market, and a dozen of extra quality are worth one pound sterling (five dollars). You may see these imported toads in all the market gardens where the soil is moist, and the owners of those gardens even prepare shelter for them. Many grave persons have shaken their heads, when they heard of this new whim of the English; but those laugh the best who laugh the last. This time the English are in the right. I use to have in my garden a brown toad as big as my fist. In the evening he would crawl out of his hiding place and travel over a bed in the garden. I kept careful watch over him; but one day an unlucky woman caught sight of him and killed him with a single stroke of her spade, thinking that she had done a very fine thing. He had not been dead many weeks, before the snails ate up all the mignonette that formerly perfumed everything round that bed.

* * * * *

"Toads become accustomed to man, and do not appear to be incapable of tender sentiments. Every body has heard the story which seems borrowed from some old popular legend, of a toad which for thirty years lived under an espalier tree and came out every evening, when the family was taking supper, and got his share of the meal like the dogs and the cats. The family shed tears on the day when an accident deprived that devoted servant of life. Some of my friends believe that, after having heaped benefits upon a toad, they have obtained from that despised animal evident proofs of gratitude. A certain Capt. Perry has told me that, in traveling through the interior of Sicily, he once found on the road a snake that was just about to devour a toad. He killed the snake, and the toad went his way. Six days afterwards he returned by the same road. All of a sudden something hops along close behind him. It was his toad, who had adopted this mode of expressing his gratitude towards his preserver, and who had positively recognized him. 'But' Captain,' I said to him, 'how could you possibly identify the particular toad whose life you have saved? One toad is as like another toad as one egg is like another egg.' 'That is very true,' replied the Captain, 'but he looked at me With such grateful eyes, that I coudl not doubt his identity for a moment.' "—*Am. Entomologist.*

The Ravages of Insects.

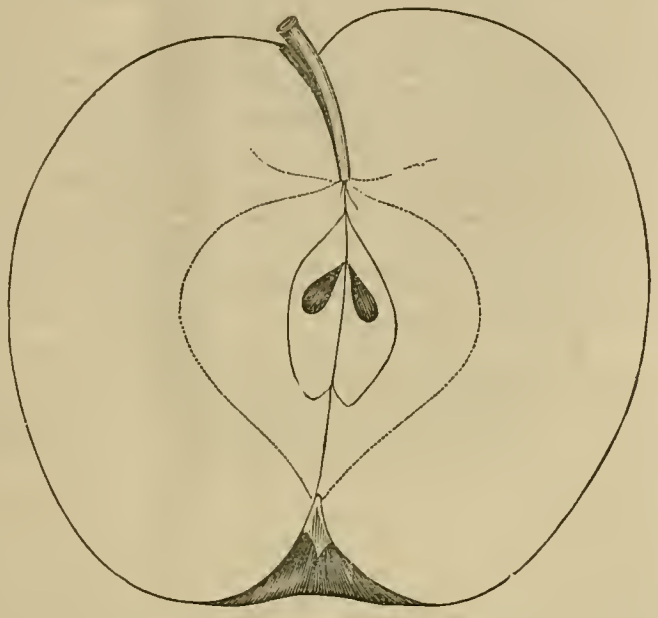
We may say positively that destructive insects are increasing every year, and that they destroy as great an amount of food as is saved. To meet these scourges will require our best efforts. The science of Entomology, by which insects are classified and their nature studied, is becoming of national importance, and we are sure that without its help little will be done. The first step in every pursuit is analysis, by which we separate a whole into parts, upon each of which attention is to be fixed. Here progress commences. One of the first results in this study is to make distinction between insects that are useful and injurious, for unless this be done one will be as likely to destroy his friends as his enemies. At present this study is so far from being popular, that the greater part of educated men, so-called, are as ignorant as the unlettered. It is manifest that the elements of this science should be taught in our common schools, if it is to become of much use; for the transmission of learning directly from the learned few to the common people, without the intervention of a teacher, is impossible. In fitting teachers for their duties, a knowledge of this science should be included among their qualifications, as much as of arithmetic or grammar.—*N. Y. T. F. Club.*

Destroying the Codling Moth.—G. M. Smith of Berlin, Wis., writes to the American Institute Farmers Club, that in July, 1868, he discovered accidentally that the codling moth had a liking for cider vinegar, and he hung open mouthed vessels containing diluted vinegar in his trees, and caught lots of them, and had thus almost altogether prevented his apples from being stung by them. The past year he got empty oyster cans, cut them in two lengthwise, put a bale in each and the vinegar in them, and thus caught the noxious insects.

Wintering Apples.—At a late meeting of the New York Fruit Growers' Club, it was stated that a gentleman in New Jersey kept from two hundred to three hundred barrels of apples, last winter, in perfect condition by simply piling them together in the open air and covering them with a quantity of salt hay.

The Kansas Queen.

Fruit, medium to average; weight, six to ten ounces; form roundish, conical, slightly ribbed towards the eye; skin clear, lively crimson, dark red in the sun, bright pink in the shade; dots gray, small, numerous; stem short and slender but often long; cavity very narrow, deep, with a lip; eye medium, nearly closed; basin narrow and shallow, furrowed and ribbed; flesh clear white, firm, juicy and crisp, with a brisk, sub-acid flavor; quality good; core regular, large, open, capsules long hollow, seeds long pointed, full, dark; Season, August and September.



Tree vigorous, healthy and hardy, forming a handsome, open head, setting fruit evenly all over the tree; leaves and bark dark. A seedling raised by B. Atkinson, of this place, from the seed of Ben Davis, planted 1858; bore first fruit in season of 1868, when nearly every variety failed.—Last year it was full, and a more beautiful sight could not be witnessed. Such a handsome red apple of even size, with no defective ones, is very seldom seen. From present prospects it promises next year a more abundant crop.

The tree is so identical in all its habits with the Ben Davis, which is a sufficient guarantee of being hardy, productive and profitable, without further comment from me.

Newburg, N. Y., Jan. 10, 1870.

S. T. KELSEY—*Dear Sir*:—When in Philadelphia you gave me a specimen of "Kansas Queen" apple which I found of pretty good quality, and will thank you to tell me where and with whom it originated, and is it a distinct fruit,'&c.; has it any syns? Also, what is its growth in the orchard, upright or spreading, vigorous or slow; and is it productive, and what time does it usually ripen?

Can you tell me the origin of Missouri Pippin or Missouri Keeper, its growth, time of ripening, &c.; and has it any other name, and which is the original name? Are these both valuable apples and worthy of introduction?

CHAS. DOWNING.

Pomona, Kan., Jan. 17, 1870.

DR. J. STAYMAN—*Dear Sir*:—I have just received a letter from Charles Downing, Newburg, in reference to the "Kansas Queen," and as I am not fully posted I refer the matter to you, as I know you can give the necessary information. Also, can you give any information respecting the Missouri Pippin. S. T. KELSEY.

REMARKS.—As this matter is of general interest we will answer the questions through the POMOLOGIST.

It affords us pleasure to be able to give satisfactory information in regard to the "*Kansas Queen*" apple at least. We took a drawing of it in 1868. In September last we sent a number of specimens to the American Pomological Society, Philadelphia, requesting Mr. Kelsey to call the attention of Pomologists to them. In October number of the *Gardener's Monthly* we gave the first outline description of the apple. Since that time we have received numerous inquiries respecting it. It is a seedling. Mr. Atkinson got two apples from Platte Co., Missouri, one supposed to be the Ben Davis, the other Yellow Bellefleur; planted the seed of these and raised seven trees; six are in bearing, all promising some remarkable quality or characteristic. They ripen in succession and cover a very long season, from July to July, two at least having qualities that are not easily equalled, which will hereafter be described. The "Kansas Queen" we do consider worthy of cultivation, for its even size, (rather large) great beauty and perfection. The tree for its health, hardiness, symetry and production. Mr. Meehan, Ed. *Gardner's Monthly*, says: "We were much pleased with the apple. It belongs to that class of handsome apples like the Williams of Boston, and the Cornell's Fancy of Pa." These seedlings are in sight of my place and I see them frequently.

We are happy to say that we have got a paper, the WESTERN POMOLOGIST, where we can discuss the subject of fruit growing. Where each person can express his views without being controlled within the narrow sphere of inexperience and dictation. We ask the fruit growers and gardeners of Kansas to come forward with their *facts* and *theories*, if they have any, and we will give them a hearing, reserving, however, the right of criticism when we think it expedient. We wish to aid in making the POMOLOGIST, a live paper, up to the present times. Neither age or the opinions of others has made the subject of horticulture too sacred if we believe it an error. It is only by observation, experience and facts that we come to correct conclusions.

We will speak of "Missouri Keeper" in March number.

COR.

For the Western Pomologist.

Interesting Facts in Forrestry.

ED. POMOLOGIST:—I trust that such articles as yours on the "American Chestnut," will excite a general interest in forest culture. Nothing more useful and ornamental than acres of forest trees, especially *evergreens*, could be added to the winsome looks of our rich, rolling prairies. You see I am partial to evergreens. During the discussion of this subject at the late meeting of the State Horticultural Society, it was proposed to grow *pine* forests from the seed. The proposition, however, was treated as a doubtful theory. To encourage experiments, I wish to state a few facts observed during the late war, on the Peninsula in Virginia. Old corn-fields, with the furrows and ridges still distinct, were densely covered with a uniform growth of *pines*. In some fields the trees were only about three feet high, in others adjoining ten feet, twenty feet, and so on up to the full growth of the stately pine. Evidently the seed is carried by the winds all over the Peninsula, and wherever a field is abandoned by the plow, a pine forest springs up and flourishes. The earthworks of the Revolution, still observable about Williamsburg, are in many places covered with large pines. The battle of Williamsburg of April 1862, was partly fought in these old fortifications.—The dead Union and Rebel soldiers were found lying side by side, just as they fell in their hand to hand conflict, striving for the possession of these old earth-works, hid in the forest. The fact of such spontaneous growth of pine forests in Virginia, should certainly encourage us to the effort of cultivating evergreen forests to add to the beauty and wealth of our noble Iowa.

"The evergreen stern winter's power derides,
Like Hope that in misfortune's storm abides."

The genus *pine* consists of nearly forty species, and it is fair to presume most of them will grow luxuriantly on our prairies.—Would it not be well for our Legislators to offer a premium for the largest and finest pine forest produced in Iowa during the next ten years? THOMAS G. ORWIO.

Des Moines, Iowa.

—The cranberry crop at Harwich, Mass., amounted, during the past year, to 3,761 barrels, which were sold for $39,590.

THE POMOLOGIST.

THE SITUATION—CORRESPONDENCE—ENCOURAGEMENT.—We are very thankful for the flattering reception the POMOLOGIST is receiving from all quarters—East and West, and for substantial assistance rendered through the efforts and kindness of many friends of the enterprise with pen and purse. If there have been any doubts whether such a paper would find sufficient support to sustain it, both financially and editorially, they are now dispelled. We know that there are several old and most able papers already in the pomological field, but those papers are confined to the East—not one of them located west of the Hudson river. They are not therefore, in all respects, adapted to the wants of pomology in the broad valley of the Mississippi—the heart of the West. A co-laborer in the great pomological field of our common country, located in this region, will not limit materially the circulation, or lessen the amount of good the older Pomological Journals of the country are effecting—while it is conceded on all sides (as our columns unmistakably show) that the West needs a paper devoted to the pomological interest within its own borders, and adapted to meet the demands of that interest

We are in receipt of letters from prominent pomologists of the East, (as well as the West,) who are deeply interested in the fruit-growing enterprises of the whole country, and most especially the West. Among them we transmit to our columns one from F. R. ELLIOTT, Cleveland, Ohio, to whom the country is indebted for "Elliott's Fruit Book," and other works of interest and merit on Pomological subjects, and which we regard as among the very best. These words of cheer with regard to our new enterprise, as well as complimentary remarks with refereoce to the great Northwest are highly appreciated; and, we shall spare no pains to aid in the development of the Pomological resources of this vast section of country, in the center of which we are located.

Cleveland, Jan. 12, 1870.

MARK MILLER, *Dear Sir:*—I have just received a copy of your prospectus for the WESTERN POMOLOGIST, and I have to thank you as the pioneer in the work—a work that will doubtless be of value and advancement to the people of the Northwest, whether it take from or pay into your pocket pecuniarily.

The Northwest is rapidly filling up with a class of people more intelligent than the average of new settled sections, and my letters from that portion of the States continually remind me, by their increased numbers as well as enquiries and new specimen fruits sent me, of the great interest fruit-growing is to them. In fact you have in the Northwest just that class of people to whose intelligent wants there is no such word as "cannot."

Enclosed find $1, your subscription price. Our American Pomological Society Transactions are just out.

Yours, truly. &c.

F. R. ELLIOTT.

In a letter from A. S. Fuller of New York, a noble laborer and able author in the pomological field, after expressing heartfelt good wishes (backed up with the almighty $1) for the success of the *Western Pomologist*, he says. "but don't forget that the Western States owe some little of their progress to the East" No, we never shall forget that we are indebted to the East for some of the noblest men that are now in the West—the invaluable experience of the older states—the standard works and the periodicals which transmit that knowledge to us. We owe much to that generous spirit that rejoices in the development of the fruit growing capacities of our whole country. We will endeavor to repay these obligations in part, by contributing from our growing fund of experience and observations, and at no distant day to send from this corner of the West car-loads of fruit to tickle the palates, and to gladden the eyes of those eastern sojourners whose footsteps have not reached our promised land.

MORE EDITORIAL AID.—We have the pleasure of introducing to the readers of the *Pomologist*, DR. J. STAYMAN, of Leavenworth, Kansas, as assistant editor. Dr. Stayman became a citizen of Kansas at an early day of its settlement, and is too well known as a thorough-going horticulturist to need from us words of commendation. The several articles in this number of the paper from his able pen speak for themselves. Dr. Stayman will have an eye to the pomological interests of Kansas, in connection with the paper. To facilitate his work, and to save both of us the inconvenience of more or less needless correspondence, we request our patrons in Kansas to correspond directly with him.

PRESIDENT MATTHEWS' ADDRESS.—We direct attention to the excellent address of Hon. James Matthews, delivered before the Iowa State Horticultural Society, at its last annual meeting. It is a model document—free from that prosy, theoretical, speculative drift that too often make up the major part of such papers. Every paragraph is an epitome of solid facts wrought out by the author in the field.

AT HOME.—Our good old friend D. D. T. Moore has our thanks for invitation to the Fifteenth Anniversary of his very popular journal, the *Rural New Yorker*, and of his Fiftieth Birth-day. Long life to friend M. and the *Rural*. Should be pleased to be "thar," but want of time and depletion of purse say no.

We are under obligations to W. H. Ragan, Secretary of the Indiana Horticultural Society, for a bound volume (96 pages) of the society's report for 1869.

To ex-Secretary Flag, of the Illinois State Horticultural Society, for a volume (360 pages) of its transactions for 1869.

F. R. Elliott, Secretary of the American Pomological Society, will accept our thanks for a volume of about 300 pages in all—embracing the proceedings of the twelfth session of the society held at Philadelphia in September last. All members of the society are entitled to this work, Two dollars addressed to Thomas P. James, treasurer, Philadelphia, constitutes a membership.

THE HORTICULTURIST.—We are pleased to find upon our table this old time-honored horticultural institution. For prospectus see advertising columns.

THE AMERICAN JOURNAL OF HORTICULTURE puts in an appearance with clean face and well fed columns

Ditto the GARDENERS MONTHLY. See advertisements.

PETERSON, AND ARTHUR'S HOME MAGAZINES for January and February are to hand—overflowing with good things.

MONTGOMERY COUNTY HORTICULTURAL SOCIETY —We are favored with the "Proceedings of the Montgomery County Horticultural Society," held on the second instant; but we have no intimation whatever of its whereabouts. Should this paragraph chance to meet the eye of any one of its officers or members, we trust they will just tell us in what corner of Christendom the "Montgomery County Horticultural Society" has its being. It is evidently a live institution somewhere.

OFFICERS OF HORTICULTURAL SOCIETIES.—The following are the lists of officers of state and local horticultural societies for the current year.

OHIO.—President, Dr J. W. Warder, Cincinnatti; Vice-President, G. W Campbell, Delaware; Secretary, M. B. Bateham, Painesville; Treasurer, Dr J. W. Dunham, Collamer; Committee, D. C. Richmond, Sandusky; N Olmer, Dayton; L. Weltz, Wilmington; I. D. Clark, Lancaster.

INDIANA —Allen Furnas, Danville, President; S W. Pearson, Plainfield, Recording Secretary; W. H. Ragan, Indianapalis, Corresponding Secretary; Charles Lowder. Plainfield, Treasurer.

NORTHERN ILLINOIS.—President, Samuel Edwards; Vice Presidents, D. C. Scofield, J. B Bubah, Lewis Ellsworth, Dr. Mygat, and Edgar Sanders; Corresponding Secretary, D. Wilmot Scott; Recording Secretaries, Charles Andrews and H. D Emery; Treasurer, E. H. Skinner; Executive Committee, J. W. Cochran, S. Edwards, and James G. Soulard.

OSKOSH, WISCONSIN —President, G. W. Washburn; Vice President, J. H. Osborn; Corresponding and Recording Secretary, I. J. Hoile; Treasurer, Jocob Fowle; Librarian, Miss N. Fowle; Executive Committee, G. W. Washburn, I. J. Hoile, J. H. Osborn, Geo. Hyer, J. M. Rollins; Floriculture Committee, Mrs. G. W. Washburn, Mrs. Geo Hyer, and Mrs. L H. Reed.

HORTICULTURAL SOCIETIES.—Very full and interesting reports of the last annual meetings of the Iowa and Wisconsin State Horticultural Societies will appear in our March number. We are also promised a report from the Northern Illinois Society, and from Minnesota.

READ THE WESTERN POMOLOGIST—Its columns overflow with contributions from the pens of the most practical pomologists throughout the West, and with interesting correspondence from prominent fruit growers in the older States.

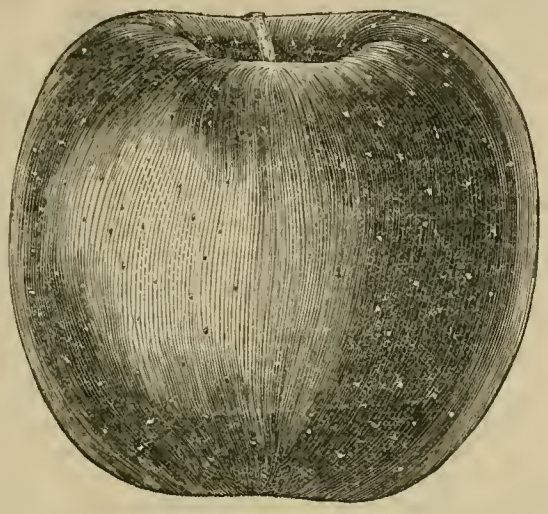
To all who cultivate Fruits, Flowers, Vegetables, Forest Trees, &c., even on the most limited scale, in either city, village or country, this journal is indispensable to success, would you economize time and money. Its columns are filled with information of the highest value and interest—alike to the gentleman and lady of taste and ample means, and to the most humble, practical fruit grower and gardener.

It should be borne in mind that Western Pomology differs widely from that of any other great fruit growing district of our broad country, running through a long range of both longitude and latitude; we have a different soil and climate to work in. Hence the importance and value of a journal devoted to Western Pomology, and the price of which puts a copy within reach of every one, however limited in means.

The POMOLOGIST is published monthly; sixteen large quarto pages, of three columns each, on the finest book paper, inclosed in a neat cover of colored paper. It is profusely embellished with fine engravings of Fruits, Flowers, Vegetables, Floral designs, designs of Cottage Buildings, Horticultural Tools, Implements, &c.

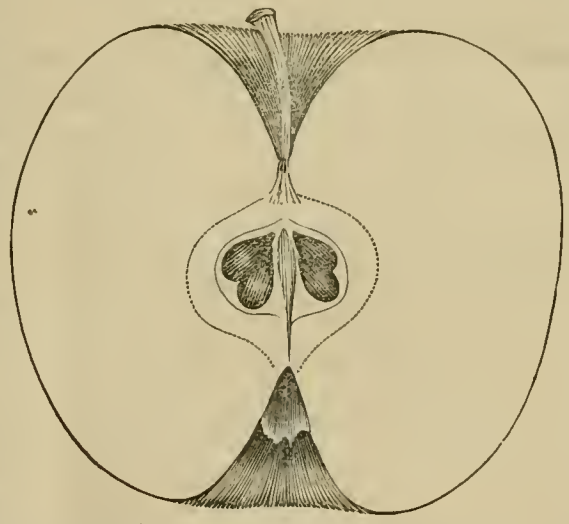
Grime's Golden Apple.

The great sensation in the apple line at present, is "Grime's Golden." Our attention was first called to this apple a year or more ago, by S. B. Marshall, of Cleveland, Ohio.—But until within a few weeks past was it, that we had an opportunity of seeing and tasting the fruit, for which our acknowlegements are due to Dr. Z. Hollingsworth, of Sandusky, Lee Co., and to Mr. Johnson Meek, of Vincennes, of the same county. On our return home from the meeting of the Illinois Horticultural Society, in December, we found liberal donations of the fruit from both of these gentlemen. And, after having seen and tasted, we are free to confess our happy disappointment in "GRIME'S GOLDEN"—that to much in commendation of its many excellent qualities can scarcely be said—an opinion that has the unqualified endorsement of good judges who have seen and tasted with us. It is a matter of surprise that a tree and fruit combining so many desirable qualities in Iowa, should have attained so little notoriety ere this. The accompanying illustrations are copied from a specimen received from Mr. Meek, and represent the apple truthfully. Mr. Meek informs us that he planted ten three-year old trees of "Grime's Golden" in 1849 and 1850, that they came into bearing early—that they stood the hard winters of 1856 and '57 so well, that the following season he planted forty-four more trees in place of others killed out—that all the trees have borne good crops annually, and that the fifty-four are still standing, vigorous and fruitful as ever. So hardy is the tree that we think Grime's Golden worthy a trial in Minnesota.



Dr. Warden, in his *American Pomology*, (and by the way a most valuable work) describes this as follows:

Tree vigorous, healthy, spreading, productive; bears early; shoots stout, dark; foliage abundant, dark green. Fruit, full medium, cylindrical, regular; surface yellow, vein russeted, dots numerous, minute.—Basin abrupt, folded; eye large, closed. Cavity wide, regular, green; stem long, curved, Core small, pyriform, closed, meeting the eye; seeds numerous, plump brown; flesh yellow, firm, breaking, very fine grained, juicy; flavor subacid, aromatic, spicy, rich, refreshing; quality *very best.* Use desert, *too good for aught else.*—Season—January to March.



We have on file for March number a valuable and interesting communication on "Grime's Golden," from R. P. Hanan, Suray, Clark county, Mo.; and also another from the pen of Dr. Hollingsworth, upon the same subject, detailing an experience of several years with both tree and fruit.

NEW PEACH.—A new seedling peach is announced christened the "Laurenel" in Monroe, Ohio. It is said to be about the size of Hale's Early, a week or more earlier in ripening, much finer flavor, does not rot on the tree, &c.

For the Western Pomologist.

The Cherry—Its Propagation—Mahaleb vs. Morello.

Much as the members of the Iowa State Horticultural Society may justly claim to have accomplished at our late meeting, (and certainly it was a great success) much more still remains to be said, and vastly more to be done, before we shall have reached the goal of our high calling. I know well that our work requires time, patience and perseverance; but can we not facilitate? Can we not do more in a given time, that is annually, for the impartation of pomological science than we have done in the past?—Owing to the multiplicity of subjects which necessarily press themselves upon us for discussion at these meetings, I am strongly inclined to the opinion that we should occupy more time than heretofore; that we should take four or five days instead of three. At our last assemblage, some prominent subjects in which all are deeply interested, were scarcely mentioned, and others not even alluded to. But in a three day's session we could hardly have done more than we did.

In regard, for instance, to the cherry, a favorite fruit with almost everybody, I believe, we simply passed a resolution recommending the Early Richmond for general culture, and had a little talk about the best kind of stocks for this variety only.—This is a matter of some importance, and ought to be settled. The opinion of the State Society ought to be known, and definietly determined, before we plant too largely of *this* and *other kinds*, if there are any others which will do to recommend. I know there are strenuous advocates for the Morello stock. Some would use no other. The choice lies between this and the Mahaleb. The Mazzard Seedlings are generally rejected because many of them are too tender, even for collar grafting, and therefore unsafe.—The Mahaleb is perfect, when budded, or grafted near the ground, so far as hardiness and healthfulness is concerned. It will not be denied that the graft or bud will grow as well on the Mahaleb as on the Morello. The dispute is only in regard to fruiting. The prejudice against dwarfing cannot be interposed between these two stocks, as they both have a tendency to dwarf. The stronger and more vigorous growth may, I think, be claimed in favor of the Mahaleb. But I will admit that in this respect they are equal.—Then the philosophical conclusion is, (the object of all dwarfing being to obtain early fruitfulness) that no preference can be claimed for either for early fruiting. But it is maintained by some, that for peculiar reasons, never yet given, the Early May or Richmond cherry, on Morello stock, will bear earlier, and continue to produce a larger crop of fruit, than on the Mahaleb. So far as my experience goes, this does not hold good.

My attention has been directed particularly to the subject for some time, on account of an article I saw a few years ago, I think in the *Homestead*, in which the writer, a resident of Jasper county, asserted in substance, that the Early May or Richmond cherry was valueless when worked on the Mahaleb, by reason of its not fruiting on that stock.—Knowing that a portion of the trees I had sold were thus worked, I felt quite mortified, and commenced at once to investigate the subject and find out if I had, unintentionally, been imposing upon my neighbors and friends by selling them worthless trees.—During the next cherry season, which soon occurred, I found a dozen or so of *genuine specimens* in different gardens about Knoxville, all of which had as large a crop as any trees of their age and size in the neighborhood. They were then two years transplanted, and four years old from the bud.—Since that period, I think five years ago, they have not failed to bear as heavy a crop as any trees I know of, and I should be glad, at the proper season, to show them to a committee of any Horticultural Society, so that for healthfulness and productiveness, they may be compared with any trees of their age in the State JAMES MATHEWS.

Knoxville, Iowa.

For the Western Pomologist.

Scraping the Bark off Trees.

So far as my observations extend, the practice of divesting fruit and other trees of their outer bark, suffers little or no abatement. Only a few years ago, the city authorities here, ordered that the large trees in some of the streets, and in the public square, should be scraped clean of their outer integument, and as high as a man could conveniently reach; assigning as a reason for the venture that it would very much improve them in appearance, if not in health and vigor. So, likewise, have we seen the experiment tried upon apple and pear trees, when an effort at rejuvenation has been deemed expedient. The motive in each and every case, no doubt, originating in the belief and hope that much good would be the result, but, withal, and admitting there may be some unobjectionable features in the system, it may be reasonably questioned as to whether or not, in any case, "the game is worth the candle."

We are opposed to the practice, chiefly and emphatically, because the epidermus, or outer bark of trees, is the covering provided by nature for their protection against the adverse influences of climate, and for maintaining in even balance that degree of warmth most favorable to the healthy exercise of their vital functions. And, perhaps, the fact is not yet sufficiently realized how admirably suited this external covering is for such a purpose. It is only the other day, a learned Physicist when experimenting upon the conductility of various bodies, ascertained that wood, cross-ways, is a non-conductor of heat in an eminent degree, and the outer layers of bark even greatly more so; facts, these, which show that in the vegetable economy, the fitting of means to ends is so close and intimate as not to be safely disturbed, while, at the same time, they seem to indicate that the practice we oppose is out of harmony with the plans and purposes of nature.

It may be assumed, the chief reason urged in support of the practice, is that it lightens the trees of a load of dead and useless matter which cannot be of further benefit; but, on the contrary, when allowed to remain, is only a harbor and encouragement for insect enemies, and for the growth of moss and lichens It may be true the depredations of insects have been lessened by the process; but we question if in any instance to be appreciable. And as for lichens, we are at a loss to understand how they can be hurtful to trees, for, although growing upon them, they live exclusively upon food drawn from the atmosphere. We do not claim that trees derive any benefit from those epiphytes, unless in bleak and exposed situations they supplement the bark in affording protection. But when found in excess upon on apple or pear trees, of immature age, they may be accepted as a sign that, from some cause or other, those trees are not in such a satisfactory condition as could be desired. Want of thriftiness in trees favor the growth of lichens, and this may be induced by a variety of causes, either singly or in combination, such as impoverishment of the soil, want of drainage, or exposure to the rigors of a severe and variable climate. With these, and other opposing agencies the cultivator has to contend, and by wise and well directed effort, some of them, at least, can be partially overcome; in no supposable case, however, need he hope to better his prospects by the use of the scraping knife; for, from whatever cause trees cease to increase perceptibly in diameter, outside appliances can no more impart fresh vigor to them, than the under-fed and over-driven roadster, all of whose "bones stick out," can be made sleek and fat by the use of the curry-comb.

In cases, therefore, where the preliminary duty of properly preparing the ground before planting, has either been in part or wholly neglected, fresh life and vigor can only be communicated to trees, which exhibit signs of going down in the "struggle for life," by digging about and under them, so far as practicable, at the same time working in about the roots a proper quantity of suitable compost. We have seen such dressings produce the most beneficial results, and. as a consequence of improvement, the outer bark, with the objectionable lichen, falling off in shreds and patches, in nature's own time and way.

A. Veitch, *New Haven, Conn.*

For the Western Pomologist.

What is Mildew?

BY WALTER ELDER, LANDSCAPE GARDENER.

In former ages it was supposed to be beyond the comprehension of man to discover what mildew was, from whence it came, the causes of its presence, and how to prevent its injurious effects; but now, scientific investigations by powerful microscopes, it is found to be a world of parasitic plants, of various genera and species, whose spores or seeds float in the air, and are omnipresent, and take root upon all decomposing bodies, both in aridity and moisture. Yet practical cultivators disagree about the causes of its attacks upon living plants; some assert that *dry air* is the cause; others maintain that *too great a moisture* is the cause; a third class declare that *a plant must first become deranged in its organization before mildew can take effect upon it*; or, in other words, a plant in a thrifty state of growth is never affected with mildew. We have always adhered to this last theory, and the more we have watched its presence, the more we are convinced that this theory is the true one. Wherever we find it upon the fruit, foliage, or body of a plant, we at once know that an unhealthy action has taken place in its once healthy system, and at once use the means to restore the health of the plants by such applications as we think will prove effective. The gooseberry, grapevine, and pear tree, growing upon dry soils, and fully exposed to the rays of the sun, all become languid by the drouth; hence, syringing them on evenings with water, and giving them a plentiful supply at their roots, will either effect a cure or mitigate the malady, and the destructive effects of mildew will be checked. Where too much moisture is the cause, we use means to lessen it, by withholding water, draining, &c. So we look upon mildew as a messenger of mercy, to tell us when our plants are sickly, and urge us to do something for their relief.

Pine trees, growing in marshes, are often destroyed by "dry rot;" the interior becomes as hollow as a sponge, and is full of mildew; but they are never so affected upon high and dry lands. Foreign grapevines and peach trees, grown in glass houses and in very moist atmospheres, are affected with mildew; but the peach tree growing in the open fields, even in the burning sands of New Jersey and Delaware are never troubled with mildew. Foreign grapevines in glass houses, are generally free from mildew, where the atmosphere is neither kept too dry nor too moist, and a free circulation of fresh air is kept up; so, in these cases, a superabundance of moisture is the cause. Every observing cultivator can readily notice, that whatever is hurtful to the thrift of plants, will be the cause of the presence of mildew upon them. Mildew is what causes plums to rot upon the trees, when they lack moisture at their roots, and the fruit of pear trees to crack and dry up. So pear and plum trees succeed best upon lands whose sub-subsoils have a strong power of retaining moisture. Salt sown around plum trees is a good safeguard, and so is mulch of litter, in summer, a safeguard to pear trees.

One genus of mildew is named *Oidium*, and it is some of its species that injures the grapevine, gooseberry, lilac bushes, &c. Another genus is named *Erecíphe*, and it is its species that destroys the garden pea, cabbage, chrysanthemum, &c. The species found upon old bread, is different from the species upon wall-papers, when the walls are damp. The must upon grains and in flour, when long kept, is mildew. In short, the spores, or seeds, are everywhere, and soon tell us of our negligence in all departments of life.

It would take up too much space, and tire the reader, to make any more statements about mildew, at present.

Philadelphia, Jan. 10, 1870,

Sunshine and Clouds.—Ah! this beautiful world! I know not what to think of it. Sometimes it is all sunshine and gladness, and heaven itself lies not far off, and then it suddenly changes, and is dark and sorrowful, and the clouds shut out the day. In the lives of the saddest of us, there are bright days like this, when we feel as we could take the great world in our arms. Then come gloomy hours, when the fire will not burn in hearths, and all without and within is dismal, cold and dark. Believe me, every heart has its secret sorrows, which the world knows not, and oftentimes we call a man cold when he is only sad.—*Longfellow.*

For the Western Pomologist.

Rambo and Yellow Bellefleur.

Topography, Locality and Soil for the Yellow Bellefleur; Protection and Locality for the Rambo.

A brief outline of the topography of this vicinity, may give the reader a clearer view of the facts we may present, from time to time, in this correspondence. Each locality has its peculiarity—both meteorologically and geologically.

As we are near the sources of several small streams that flow east and empty into the Des Moines, the surrounding country is hilly—the main ridges are high prairie and possess a deep, warm soil, and generally speaking, fringed on either side with valuable timber, or a dense growth of small trees. The small ridges on the north side of the creeks slope off gently and are covered, where not in cultivation, with a growth of burr, black and jack oaks, elm, hickory and basswood; a light, rich soil, well suited to the production of corn, oats and potatoes.—On the south side the bluffs are abrupt—covered with heavy growth of white oak and red oak. The soil is nothing but a leafy mold. Along the south skirt of this timber apples and cherries can be grown with more certainty than fall wheat, and no farmer, within our knowledge, has given up the growth of wheat because that cereal has failed a few seasons. The clay is sufficiently aluminous and silicious to make good bricks. Where orchards have been planted on soil over-lying this kind of sub-soil, the results have corresponded with the extent of planting. The great care here in cultivation is the proper application of manures. Many fail from sheer negligence in this, others in following an eastern experience; which is found to be inexpedient when too late for the health of the tree. To illustrate the proposition that different localities require not only difference in cultivation, but different varieties of trees, we will give our observations in two contiguous localities and one or two varieties of apples there raised.

On our hills sloping to the south, or ridges, surrounded by dense timber, the Rambo is a rapid grower, a certain and prolific bearer; whilst on a deep, cold soil, with no protection from the prairie winds, it is not grown with any success. The Yellow Bellefleur, whose fruit is most saleable, a tree of vigorous growth under all ordinary circumstances, is not worth its room on a deep, loose soil—rarely fruiting—but on "*white oak soil*" produces abundantly and early comes to bearing. Much expenditure of time and means would have been saved by attending to this simple fact in this county. OBSERVER.

Urbana City, Appanoose Co., Iowa.

REMARKS.—The experience of "Observer" with Yellow Bellefleur is that of others without a single exception, who have planted it in Iowa, so far at least, as our observation and experience goes. For two or three years past we have recommended this tree for compact, tenacious soils only. A loamy soil of ten to fifteen inches, underlaid with a somewhat stiff clay sub-soil will do, if well underdrained and the tree set deep—say with collar six to ten inches below the natural surface.

HORTICULTURE

A New System of Rose Culture.

Under this head, F. Parkman writes to the *American Journal of Horticulture*:

Some of the French and English horticultural Journals speak of a new method of growing roses, quite different from any before practiced. The essential points are these: First, to prune out all the old wood; second, to shorten the new wood very little; and, third, to peg it down flat to the earth. The rose is allowed to bloom, like a raspberry, only on the wood of the last year's growth; and this wood is but very slightly pruned. All this is very un-orthodox, and contrary to every received maxim. The effect, however, is said to be very fine. The long, young shoots, pegged down to the ground, produce an abundance of flowers from every eye; while fresh shoots grow up with the greatest vigor from the center of the plant. These, in turn, are pegged down the next year; those which had bloomed being first cut away. It seems incredible that roses, under this treatment, should produce as large flowers as under the system of short and severe pruning; but they can certainly be produced in a prodigious abundance. The ground is said to be completely hidden with masses of foliage and blossoms. The effect of laying the shoots in a horizontal position is to cause the eyes, or leaf-buds, to open from end to end of the stem; while if it had been left in its natural, upright position, the tendency of the sap to rise would have caused the eyes at the top to open, while those below remained dormant. The new method will probably be found to have one great advantage: the rose will live longer under it than when subjected to very close pruning. This latter practice is sure to result every season in a quantity of dead wood, which has to be cut away. Some varieties, when cut near to the ground year after year, rapidly decline, and at length die.

The plan of long pruning and pegging down was first tried two or three years ago in England and France, and has since been practiced with great success by a French cultivator, M. Jean Sisley, of Lyons, who describes his experience in the *Revue Horticole*. It is well worth a trial here. We mean to try it, and we commend it to all amateurs who have time and patience for experimenting.

How to Fill a Hanging Basket.

In a former number of the Monthly we described "How to fill a Vase," and it is now our intention to describe "How to fill a Hanging Basket."

Hanging baskets are usually made of wire; many however are made of terra-cotta, earthenware and rustic work. Of all mentioned, perhaps the latter is the most tasteful and the most beautiful.

If the basket be made of wire, we must procure some moss with which to line it, to prevent the earth from falling out. The best moss is that which is to be found growing in the woods, by the sides of small streams and other like damp places. In selecting it, preference should be given to that of a bright green color, and that which has not grown too tall. Well, having selected our moss, our next step must be that of placing it in the basket. This is easily done, and requires no directions other than that in placing it be careful to arrange it so that it presents an entirely green surface on the outside. Do not try to shave off too much of the earth on the inside, but allow it to remain fully an inch thick.

The next question to be considered is the soil. We have found that three-fourths potting soil, (such as is usually found in greenhouses,) and one-fourth sand, answers admirably. Fill the basket half full of the above mixture, and then select your plants.—"Select your plants!" we hear some one exclaim, "that is easier said than done!"—Quite true; but we propose to assist the novice in his attempt. Of course there is, and always will be, various opinions as to what plants look well in a hanging basket. And here we wish to be understood that we are simply giving our opinion, hoping that if any differ from us (and doubtless many will) they will give their opinions on this subject in the columns of the *Monthly*.

We think that to look well, a hanging basket should not have anything in it that will stand up too high, or which by growing, may be out of all proportion to the size of the basket. We refer to such plants as Fish and Rose Geraniums, Roses, Fuchsias, &c. In our opinion, Ferns form most appropriate centers; around the edges Tradescantia, Periwinkle and Lobelias may be used to advantage. If the basket be suspended with a wire or chain of considerable length, nothing looks more charming than to see a climber, such as Maurandia or Thunbergia, running up the wire. The beautiful *Cissus discolor* is exquisite in this position. Try it.

In speaking of "how to fill a hanging basket,' above, we have referred to those to hang in the open air under piazzas, but when it is designed that it should hang in a hothouse, orchids may be employed with great effect.—[Gardener's Monthly.

GIGANTIC LEAF.—*Hearth and Home* says: A plant has lately been discovered in Nicaragua which produces but a solitary leaf, but this one, with its petiole (leafstalk), grows fourteen feet long. This wonderful plant has been named *Godwinia gigas*, in honor of George Godwin, one of the founders of the Art Union of London. The Godwinia is allied to the genus *Dracontium*, or the well-known Dragon-flowers of our gardens.

The discovery of an English botanist of such a wonderful plant near our own country ought to stimulate the botanical societies of the United States to make some little exertion toward finding out what there is in our continent worthy of notice. We have millions of dollars to squander upon things which are of no earthly use to our people, but not a cent to devote to science.

—It is stated that near Ricco's Bluffs, on the St. John's river in Florida, there is an orange grove embracing about an acre of ground, which has borne this year 300,000 oranges. These, at two cents apiece, would yield $6,000. The average price of over 100,000 already sold was three cents. Four of the trees yielded about 5,000 oranges each.

—The *Southern Farmer* (Memphis,) says: "No man is fit to manage a farm who does not think beforehand what it is best to do, and which is the best way to do it. Work without thought, without plan, has been the blunder of many who pretend to be farmers."

—Some one has beautifully said: "The water that flows from a spring does not congeal in winter, and those sentiments which flow from the heart cannot be frozen by adversity."

—Never whine over what you suppose to be the loss of opportunities.

Grafting the Grape.

We have had so many inquiries respecting grafting the grape that we fear we have not been fully understood in what we have previously said in the *Gardener's Monthly* upon the subject. We hope after several years further experience to be able to add something new if not to simplify it.

It appears strange that an operation of such simplicity should still remain a mystery. We seldom read anything upon the subject but what appears to be grafting on the *brain* instead of *practically* grafting a *grape vine.* All this talk about a want of congeniality between the stock and scion is purely speculative. We have grafted with equal success the different species and varieties, wild and cultivated, have been unable to see any difference, in uniting, growth or productiveness; have had over two hundred feet of growth the first season, and over sixty bunches of grapes the following season from a single eye graft. We believe a thousand well matured eyes can be procured from one by strictly following the letter of this article in its various details.

In the *Fall* immediately after the first killing frost, (say about the 20th of October in Kansas) cut well matured grape wood with as little pith as possible, (we prefer small, short jointed wood from the laterals) for grafting. Cut this wood in convenient lengths and tie in small bundles with willow, and pack down in your cellar or away from frost for safety, convenience and easy access. As early in the spring as the frost leaves the ground and it has become settled, commence to graft and cease grafting as soon as the vines commence to bleed freely. The earlier the work is done the better. February, March or April, according to season and location.

To succeed well, the stocks should be at least two years old. Take the earth away from around them about four inches deep, and cut the vines off at a clean smooth place about two inches below the surface of the ground. They should be grafted soon after cut off and not exposed to the wind, sun or air long.

If not immediately grafted cover them over with earth until you are ready. Cut the top of the stock smooth and then *peel off all the loose bark* (leaving none but the inner thin bark) around the stock as low down as the graft goes; split or rather cut the stock by holding the knife (which should be straight on the edge) nearly perpendicular on the side you wish to insert the graft, and strike it gently with a light mallet until you cut it deep and low enough to set the graft, but be very careful not to cut through to the opposite side; then with a very narrow iron wedge, thickest on the outside, drive it gently until you open the stock wide enough to set the graft, but not so as to split it through to the opposite side. If the stock is small use small or thin cions, cut them with two or three buds if short jointed, (if scarce, one bud will do provided there is length of wood below the bud of two or more inches) *peel all the loose bark off* (leave none but the thin inner bark) on the end as far as inserted in the stock; wedge the graft so it will be the *thickest* on the *outside* to exactly fit the split and match the stock; place the graft in firmly so when the wedge is removed the stock will hold it securely without tying, with the greatest pressure on the outside of the graft (use no wax); If the stock should split through, cut it off and try again; if careful this will seldom happen; pack the earth around the graft firmly and let but one bud be level with the surface (never below); if too high, mound up to the bud. In case you cannot cut off under the ground, the graft can be inserted above, using the same length cion, and bank up the earth firmly to the upper bud.

It sometimes happens in old wild vines, as well as those cultivated, that the roots branch out at or near the surface of the ground.—In such instances were we to cut them off below the surface roots we would lose the full strength of our stocks, therefore in such cases it is best to cut them off above these roots but as near to as convenient and graft the stocks there and bank up as before mentioned.

If the grafting is done early in the spring it is best to cover the graft several inches with earth and let it remain until all hard freezing is over, otherwise the frost might lift the grafts out of their places. When all danger is over remove the earth and let the upper bud expand. Never allow a bud to be in a hole to fill with water and mud.—Watch and keep the suckers down or they will soon rob the graft. Cultivate well and protect the grafts by tying them up to stakes as fast as they grow.

We may have been tedious in giving all the details, but find it even necessary to emphasize and parenthesize in answer to numerous questions. The grape may be successfully grafted after the leaves have put out, and even up to June and July, using the green grape wood for cion. As we have only space in this number to give *early spring* grafting, we shall defer the other methods and seasons to a future number, with illustrations, giving ample time to perform the work.

KAN. AST. ED.

For the Western Pomologist.

Fruit Growers of Kansas,

You should take the WESTERN POMOLOGIST,

First—Because it is directly identified with your interests, and will be ably edited by practical horticulturists who know equally well how to handle spade or pen.

Second—Because its contributors will be largely made up of practical Western men, who have learned the great difference in Eastern and Western horticulture, and will teach you facts as well as theory.

Third—Because it will be your journal and afford you a welcome messenger for the exchange of experience, and whose editors will publish your contributions in the spirit in which you design them, and encourage you to help each other.

Fourth—Because there is no other purely horticultural journal in the West, through which you can communicate, without being liable to have your matter so controverted as to make you look rediculous, though your intentions be ever so good. The POMOLOGIST will be your *true friend*, and let you be engaged in any of the branches of gardening, in it you will find an advocate of your best interests.

Fifth—Because you have heretofore had no medium through which to explain away an error, or speak of an injustice done you by designing or erroneous reporters, who too often forget the interest of their employers and turn to ridicule that kind of intelligence which should be acceptable to those who read their papers.—For a specimen, I refer you to the *Prairie Farmer* of January 15, 1870, No. 2, page 11, in which their reporter has proved himself anything but a true Hortc'ral Reporter, and is richly deserving the *Farmer's* largest leather "medal" to "tickle his vanity," and partly remunerate him for coming five hundred miles to misrepresent the spirit and feelings of a body of worthy old men, who have grown gray in the science of horticulture, and knew more of its arts before he was born than it probably ever will be his privilege to enjoy. The members of the Kansas State Horticultural Society, of whom he speaks so "wisely," volentarily gives their time and money for the honest advancement of their cause, and for the good of their young and undeveloped State, and will try also to take care of their rights as a Society.

KANSAS BOY.

Let us Have Facts.

MARK MILLER—*Dear Sir*:—I have just received the first number of the WESTERN POMOLOGIST. I am well pleased with its general make-up and typography. It fills a great vacancy, and affords a medium for the exchange of experiences and information by Western pomologists.

Facts are what we want. We want to know what varieties have succeeded and what ones have failed in the various localities in the West; and the cause of the success or failure, so far as can be ascertianed, including the description of the site, soil, culture, seasons, (whether wet or dry, cool or hot) age, and all other matters connected, so as to more fully enable the reader to make up an opinion for himself.

Hoping the POMOLOGIST success and long life, I remain, Yours, truly,

R. P. HANAN.

Suray, Clark Co., Mo.

For the Western Pomologist.

Grafting the Vine.

From various sources I am asked how I best succeed in grafting the grape vine; and as your new journal will no doubt fall into the hands of many who may be benefitted by a repetition, I herewith send it to you.—As early in the spring as the frost is out of the ground, remove the earth two or three inches around the stock, saw off and smooth with a sharp knife. Use a graft with but one eye with a half inch of wood above, and two or three inches below, according to the depth you have cut off your stock; (as I like the eye to come about even with the surface of the ground), w'dge as in the usual way, and cut a corresponding wedge out of your stock, so as to make a nice fit. Lean your graft a little so as to be sure that the sap lines cross each other. If the stock is stiff and holds the graft firmly, all right; if not, tie tightly with waxed twine. Press the soil tightly around the union (use no cement) up to the eye; set a little peg in the ground up beside the graft, so as to always know where your graft is, so as not to rub off the eye when taking off the suckers. Cover a few inches with saw dust or leaf mould, then cover over with straw, or any kind of litter that will keep frost out. I have done it in February and in March, and even as late as April in Pennsylvania.—Here, I operate all winter, whenever the ground is open.

2 1

Fig. 1—The stock.
Fig. 2—The cion.

Now, while this has been my most successful way, I have nevertheless done it when the vines had made several feet of growth, both above and under ground, but if done above, there must be cement used.—The illustration will assist in making this plain.

It puzzles me to know what any one means by digging a vine up that does not please him, and plant another variety. Why not graft that variety? I have this day pruned some six or eight varieties that will most likely show fruit next year, that were grafted last March; whereas to have bought little vines of the same, I might wait two years more ere seeing the fruit. This then, when taking into account that the above varieties never fruited on this side of the Mississippi river, nor will they except on my grounds, will account for my urging this subject of grafting the vine.

Quite lately I refused a very liberal offer from the far South to go there and graft a whole vineyard, but my health will not permit me to spare the time.

In some future number I may give you the mode of root grafting, whereby every man may grow his own vines easily without the aid of glass structures.

SAMUEL MILLER.

Bluffton, Mo.

P. S. All shoots arising out of the stock must be carefully taken off, or they will prevent the force entering the graft.

For the Western Pomologist.

A Valuable Seedling Apple—The Miama Black Cap.

FRIEND MILLER:—I have just received the first number of the POMOLOGIST, and must say that I am well pleased with it.—The fruit growers of the West have long needed a journal devoted to their interests, and I hope the pomologists of Iowa will contribute their mites toward making this paper interesting and instructive.

I have been much interested in reading the account in the POMOLOGIST of the new seedling apple, called "Monto Bello," which reminds me of a new seedling that originated in this county (Van Buren) on the farm of James Duffield, Sen. The original tree is dead—having borne itself to death, as I am assured by its owner; and as a few trees were grafted from it by his son, my attention has frequently been called its exeellent qualities.

The tree is of a spreading habit; shoots strong; prolific bearer. The fruit is of medium size, conical, deep red, sub-acid, juicy, excellent. Season from December to March. I think this one of the few varieties of winter apples that is destined to be *entirely successful* here, for it seems to be, as yet, entirely free from this new and dreadful disease which has nearly deprived us of many varieties hitherto considered hardy.—I refer to the scab.

In the proceedings of our State Horticultural Society I notice quite a discussion on the propriety of adding the Miami Black-cap Raspberry to our list for trial. I have had this variety under cultivation for several years. With me it is a decided success. It is perfectly hardy, a prodigious grower, and a most prolific bearer, the fruit growing in great clusters and being of a very large size. Hence it is profitable as a market berry, as it is firm enough to admit of being carried to market without injury.

IRA PHILLIPS.

Keosauqua, Iowa.

REMARKS.—Can you not send us a specimen of the seedling apple referred to? We should like very much to see and taste it, and, if in our estimation worthy of a trial, to make it more generally known through the columns of the POMOLOGIST.

Every leaf has a bud at its base, and either a bunch of fruit or a tendril opposite to it.

HINTS IN GRAPE GROWING.—The following hints in grape culture will do to tie to:

Vine leaves love the sun, the fruit the shade.

A tendril is an abortive fruit bunch—a bunch of fruit a productive tendril.

A bunch of grapes without a healthy leaf opposite, is like a ship at sea without a rudder—it cant come to *port.*

Laterals are like politicians; if not checked they are the worst of thieves.

Good grapes are like gold, no one has enough.

The earliest grape will keep the longest, for that which is fully matured is easily preserved.

He who buys the new and untried varieties should remember that the seller's maxim is, let the buyer look out for himself.

—Vigorous growth, and great productiveness, are the antipodes of the vegetable world.

A little experimenting inclines us to the belief, that you may cut back still closer,—even to a straight, single stem three feet in height.

We have known apples barrelled and winter in barns in Western New York in first-rate condition. Barrelled tight and stored above ground the apple stands a very low temperature.

GOOSBERRY MILDEW.—Both plants and soil should be partially shaded. A moist atmosphere is favorable to the goosberry.—Here lies the secret of success in England with this fruit—a humid atmosphere without that brilliancy of sunshine experienced in this country—especially here in the West, remote from sea. It is too generally supposed that damp air is a source or cause of mildew. It has been pretty well demonstrated, however, that such is not the case with the goosberry.

EXTRA FINE GRAPES.—The *Gardener's Monthly* says: "Where extre fine buches grapes of are desired, pinch back the shoot bearing it to about four or five leaves above the bunch. This should not be done indiscriminately with all the bunches. Too much pinching and stopping injures the production of good wood for next season. These hints are for amateurs, who have a few vines on trellises; for large vineyard culture, though the same principles hold good so far as they go, they will vary in their application.

THE HEMLOCK.—It has been truthfully said that the hemlock is the queen of evergreen trees. Of all the new and rare pines, cypress, &c., that have been introduced, not one can exceed our native hemlock; indeed few can be compared to it, either in beauty of growth or general usefulness. To the landscape gardener, it is invaluable; no other tree can take its place in rounding off groups and defining outlines. It conveys an impression of finish, when properly disposed, more effectively than any other of our hardy available evergreens.—*Farmer and Gardener.*

Evergreen Shrubs.

FROM ELIOTT'S "LAWN AND SHADE TREES."

A more common, free, and abundant use of evergreeen shrubs should be adopted, because of the cheerful, bright, verdure-like appearance produced in the landscape when their dark and light green foliage and blue or scarlet berries cover with harmonious life-like beauty what otherwise in the dreary winter scenes would be barren and unsightly. Their use among deciduous shrubs can be more general than that of evergreen trees, from the fact they only rise a few feet, and therefore, unlike trees, cannot exhibit shade and gloom to the scene. Many a place is made beautiful in summer from the foliage of shrubs and the bloom of flowers, that in winter presents a dreary barren aspect, which in easily changed and draped with foliage and beauty by the simple planting of evergreen shrubs. Were we to write an entire book in advocating their general use, it would not half express our feelings, or perhaps anymore advance their frequent planting than our present few words. To the planter who seeks to create constant beauty, or who desire easy gradations and harmonious combination in landscape; to him who has but small grounds in the suburbs of a city; to those who desire to clothe the last resting place of earthly friends with emblems of eternity and lasting beauty, let me urge upon their attention the claims found in, and beauty derived from, the use of shrub evergreens.

Among the most hardy, and adopted to all sections and positions, the JUNIPER in its varieties is, perhaps, most worthy of frequent and univeral planting. There is, as we have described, trees under this head that do not bear clipping; but all the dwarf or naturally small-sized trees of this class bear well a free use of the shears, and may be kept in any form or shape agreeable to the wants or taste of man.

IRISH JUNIPER AND SAVIN.

The Swedish juniper—*suecica*—is of a pyramidal habit with a bluish green foliage and quite rapid growth. it sometimes is liable to break down from our winter snows or severe storms, and should therefore have a wrapping of small wires to keep it in form. Its growth is from ten to twenty feet high, although it may be kept, by means of clipping, down to a height of only five to eight feet- It is adopted to point groups on the corners of diverging roadways or paths, and with the podocarpos and Irish juniper very effective little clusters may be formed.

The Irish juniper—*Hibernica*—forms one of the prettiest of little point trees; it is perfectly hardy, and always keeps a beautiful rich green color, rather darker than the Sweedish· It can be kept at any height, from that of two feet upward to that of five or six. The common juniper—*communis* var. *Canadensis*—is well known, but too rarely planted because it is common. Singly, upon a lawn, it grows rapidly; and allhough rising but a few feet high, it spreads over a broad surface and forms a remarkable and effective object. *Juniperus squamata* is also a variety effective as a large spreading plant upon an extensive lawn. *Juniperus nana* and *echiniformis* are of a lighter, more yellow green and compact habit, and for positions where only a limited space can be given them are very beautiful. They are nearer allied to the *juniperus sabina*, or common savin, a variety well known, and that forms one of the best masses of low growth among the whole collection.

The *juniperus prostrata* is a very low creeping variety, of value in rock-work, and for massing and forming a low evergreen bed upon a lawn. It is admirable also for planting on small mounds and in cemeteries over the graves of the departed.

Effect of Dew on Grapes.

In the October number of the *Gardener's Monthly*, I find an article on the culture of the grape on Kelley's Island, in which the writer attributes the success there attained to the absence of fog and dew, and asks the correspondents of the *Monthly* to give their views and experience on the subject. Although I am not on your list of correspondents, yet I will take the liberty of giving you my views and experience, and you may dispose of them as you think proper.

I have for many years been of the opinion that two things were essentially necessary for the healthy growth of the grape, namely: Natural, or artificial protection from dew, and thorough drainage. The reasons for entertaining this belief are these: Some ten years ago my father tried some experiments on three vines of the Isabella, planted on the east side of the house. At first they were trained close to the wall, where they would be protected from dew by the projection of the roof, and while grown thus, they bore regular and fine crops of grapes, but subsequently, they were permitted to run on some framework, so as to make a kind of arbor in front of the house, and where the dew would fall on the leaves, after which the grapes invariably rotted, both on the arbor, and under the roof, and on the wall; and I have observed the same thing in other localities, thus showing that it is not the fault of the soil or climate, aside from dew; besides, why is it that grapes do so much better when allowed to run on large trees? Not because they are not pruned, as I have known some to contend, but because the foliage of the trees keeps the nightly dew from the leaves of the vine.

I have always noticed that, here in Missouri, wherever the grape succeeds, it is upon land that has thorough natural drainage, and if any part of the vineyard is in a spot so situated as not to have good drainage, the grapes will generally rot, while the balance of the vineyard is perfectly sound. We can also see the same thing exemplified by noting the results of different years, and I think this has been one of the best to prove my opinions to be correct; for while, in ordinary seasons, more or less grapes are affected by the rot, this year they have been totally exempt therefrom, and the reason is evidently the unusual dryness of the season, and but very little dew having fallen after the first of June.

Such are my views on this subject, and I give them for what they are worth, and should any one be led thereby to investigate the matter more thoroughly than I can do, and succeed in discovering the true cause of the rot, and its preventive, I shall be amply repaid for writing this.

THE JOSEPHINE DE MADALINE ON THE THORN.—There is a peculiarity in tree of this charming and excellent Pear, which cannot be too widely known, viz ; its perfect and enduring health when grafted on the White-thorn; so that any one possessing a good White-thorn hedge may grow abundance of this valuable late Pear, by selecting some clean stems and grafting them, so that the heads of the trees are clear of the hedge.

A tree now growing in a hedge on a hill of gravel close to the town of Hertford, is now some fifteen or more years old, and it seldom fails to give some pecks of fine, clean fruit, equal, and sometimes superior, to those from Pear or quince stocks. My attention was very recently drawn to some trees of this kind, grafted on the White-thorn, and growing in a stiff clay. To my surprise, I found the junction of the graft with the stock scarcely to be distinguished, so perfect is the union. The trees are remarkably clean and healthy, and bear very fine fruit.

Unlike some kinds of Pears, when grafted on this stock, the cores of my White-thorn Josephines are not hard, neither is their flesh gritty, but nearly always perfectly melting, and of a rich, perfumed· flavor. I have had thirty years' experience of this most distinct variety, and no winter Pear has varied so little in its character, and no late Pear, in my opinion, more deserves extensive culture.

The only kind of Pear that succeeds well on the White-thorn, for a long term of years, is the Passe Colmar, of which I know a tree some twenty-five years old. But this sort does not, as a rule, ripen well. although it bears abundantly. Josephine de Malines is of the same race. Last season (1866) my fruit of this sort were in perfection all through March and April, 1867. This season they ripened towords the end of December. Such is the subtle influence of climate on the ripening of fruit, about which we, as yet, know so little.—T. RIVERS, in London *Journal of Horticulture.*

Propagating Grape Cuttings.

I make cuttings in the fall of perfectly ripened wood. Bury them six inches deep in any dry ground. In the spring, after the frost is out, spade a trench or trenches two feet wide, and six inches deep; cover the bottom with any cheap or refuse boards. Set up at each side a six inch board, and spread on the bottom some old hay or straw, half or two-thirds rotten, about one inch thick when packed, and make it very wet.

Fill the box with rich earth. Now, with the hand, open across one end a V shaped trench down to the old straw. Press the cuttings against the side of this trench, about two inches apart, with the upper bud at the surface of the ground. With the hand, take the dirt from the front side of this little trench and press it against the cuttings, leaving a similar trench, which fill with cuttings, and continue till the bed is filled. Then mulch with loose hay or straw two or three inches deep, and with a spout or rose sprinkler make the bed pretty moist.

Now the theory is this: the rotten straw in the bottom retains moisture. The boards prevent the surrounding earth from absorbing that moisture; the mulching prevents the moisture from evaporating, and therefore the cuttings remain moist.

My experience is this—95 per cent. of all my grape cuttings treated as above have grown.

There is another item or two in this process worthy of notice; when the plants are to be lifted for the vinery or for sale, first lift out the side boards, then with a shovel or fork, the plants are taken out with roots entire and uninjured, and also that they may be easily watered, and to some purpose in the dry time.—*Exchange.*

—It is predicted that Florida will become one of the largest sugar-producing localities on this continent. The character and soil are admirably adapted to its culture, and the crop is a sure one.

For the Western Pomologist.

Southwestern Missouri as a Fruit Country.

FRIEND MILLER:—I have written so many letters from here to Iowa, that I have exhausted almost every subject that would be of interest to the general reader; and now that I have time and am tired of doing nothing, I will venture to try and hunt up something that will interest you long enough to get it read. I came to this place on the 12th day of November last, and have just been "laying around loose" for the greater part of the time, taking items; and after I have done so, I fail to see the greatness of southwest Missouri. And yet it has its good and bad qualities, and I suppose I have seen most of the bad ones, and I hope to see some of the good ones. This is certainly a good fruit country, and yet it has been only partially tried, for in all my rounds I have failed to see any place where there has been much attention paid to fruit growing, except the planting a few apple and peach trees; and of the latter there are not one-tenth as many as should be, and no signs of increasing the numbers very much. There are two or three nurseries started in the county, but they are in their infancy and cannot furnish many trees.

But I tell you that a Rochester man is making a nice thing out of peddling trees in this county, and he has been delivering trees nearly all winter. I have no knowledge of thenumber of trees and vines he has delivered this fall. Price of apple trees, four to five feet high, thirty cents, and all else high in proportion. I suppose that a majority of the trees shipped in here are ordered by new comers, and if they are not well versed in planting, one-half of all sold will die next summer; for I think this is a hard place to make trees grow. The nature of the soil and the sub-soil is such that a drouth, or even a partial one, would make much worse on newly planted trees here than in Iowa. There is a great want of varieties in the apples grown. The leading fall and winter (the only ones I have seen) consist of Raule's Jannette, Rambo, Limber Twig, Romanite, Wine Sap and a few others; and as far as I have seen the fruit, it does not compare with Iowa apples as to size and flavor. There is one thing in favor of this county, and that is, there are but few gophers, and I can see that in setting out the old orchards they have had a good stand of the first setting.—There are no crab apples (wild), nor wild plums worth anything, nor tames ones to signify. And as to currants and gooseberries there are none, but they have the persimmon and pawpaw to perfection; and seventy-five miles further south whortleberries and chinquamines are plenty. Sometime when I see more of the country west of here I will write again. S. M. DYER.

Carthage, Jasper Co., Mo.

—If God takes pains to create an insect, man may take pains to study it, without lowering his dignity.

APIARY

For the Western Pomologist.

Bees—Late Winter Management.

If the weather is cold, and the colonies have received the proper attention in the fall, but little will have to be done to bees in this month. But if the weather is mild, as in some seasons, having the appearance of an early spring, much may be done towards increasing the profits of a colony of bees.—Frequently the profits may be increased four fold by proper care given to bees during this month, or the months of March and April.

On warm days, remove the shading-board from the entrance of such colonies as are wintered in the open air, allowing the bees to fly out and discharge their faeces. During the warm day of January 10th, all my bees, wintering outside, were flying nearly all day, carrying in water; to-day (Jan. 22) every colony that I examined contained brood in the central combs, although the temperature has been as low as twelve degrees below zero since; equally strong colonies wintering in a special bee-house have as yet no signs of brood. So much in favor of out door wintering.

Keep the entrance, especially those of common hives, free from dead bees, ice and snow, else the bees may be smothered. See that strong stocks have sufficient upward ventilation, or water and frost may collect in the hive, causing mouldy comb or the death of the bees. If any stocks are to be moved a distance of less than two miles, it should be done during this month. Proper and judicious bee-culture forbids feeding in cold weather, yet needy stocks in common hives may be supplied with honey, or a suitable substitute. In movable comb hives, give needy stocks frames of honey taken from heavy colonies. In common hives bees may be fed, if the weather be warm, by placing a saucer filled with honey, or the best of golden sirup, under the hive during the night, removing it in the morning to guard against bee-robbers; if the weather is cold the feeding must be done from above; make a small muslin sack to hold about a pint, put in the bee feed, make a hole through the top, carefully cut away enough of the comb to admit the sack to the cluster of bees, insert the feed sack and cover with a loose board. All strong colonies will begin to breed during this month, and if the bees are flying they should be supplied with rye meal. This should be given early, before natural pollen can be obtained, else the bees will not accept it. Take unbolted rye meal and put it *dry* into shallow troughs, about two inches deep, and set them about one rod in front of the hive, attract the bees to it by placing a piece of comb containing a few drops of honey and some of the meal in the troughs. I have used wheat flour, mixed with bran, which the bees carried in, but rye meal is preferable. E. KRETCHMER.

Red Oak Junction, Iowa.

Cause of Bees Degenerating.

We frequently hear it said by old bee-keepers of the conservative kind, that "bees will do no good for them any more; that they formerly had good luck keeping them, but of late years the bees do not seem to work much, and the moth gets in, and they all die off. I have had such remarks made to me scores of times, and those who make them seem to wonder why it is that they have no luck with bees. There may be various reasons for their bees running out, or dying out, but the main cause is that of *in-and-in breeding.* If farmers generally should take as little care to improve the blood of their horses, cattle and sheep, as they do of their bees, their stock would degenerate and "run out," in as short a time as do the bees.

The moth gets much blame that belongs to the bee keeper. It is a great enemy to the honey bee, but very harmless to the apiary of a careful breeder. Populous and healthy colonies of native bees are never destroyed by the bee moth, so long as they continue in a healthy condition. And the Italian bees are well known by those who have bred them, to be far more successful than the natives in defending their homes from the ravages of their greatest enemy.

Let us notice how the farmer usually manages his bees. He obtains a colony in a box or gum, and sets it on a bench in his yard. There may be other bees near, or not. It swarms, and the new swarm is hived and placed beside the parent colony. The old queen is in the new swarm, the young queen is mated with a drone from said old queen, or, in plain words, she is married to her brother.

The following season the farmer has two colonies. The queens are mother and daughter; the drones are uncles and nephews—the nephews being the progeny of brother and sister. Now the virgin queens of this season are aunt and niece, and they probably mate with brother, uncle, or nephew—all immediate *blood* relations. And so this process of in-and-in breeding continues for five, eight, or ten years,—the farmer in the meantime giving no thought to the blood of his stock,—unless the bees have become so much degenerated that they have not the energy to expel the moth, or defend from robbers. The consequence is that the farmer soon loses all his bees, and he can' imagine why.

I do not mean to say that queens always mate with drones of their own hive, or of those near them, but that such is frequently the case. The only way to make success certain in all cases, is to control the mating of queens by the selection of drones for the purpose, and thus managing with bees as with any other farm stock.

There are processes now well known to intelligent bee keepers, by which the blood of this valuable stock can be improved as much, and with as much certainty as any other. Of this I may speak at another time; also, further concerning the moth.—[*W. C. Condit, in Rural New Yorker.*

Mr. Quinby, in his work on the honey-bee, recommends a hive twelve inches square and fourteen inches high, inside measurement, with boxes placed upon the top covered with a cap.

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HOAGG & BENNETT, Pettis County Nursery, Sedalia, Mo.

HANSON, H., General Nursery, Portland, Oregon.

HUDSON, T. K., New Seed Potatoes, Corn and Oats, Kansas City, Mo.

OTTO & ACHELIS, (late J. L. Darlington & Co.,) Marris Nurseries, Westchester, Pa.

THOMAS, SILAS, Clinton Nursery. Complete assortment of Trees and Shrubbery, Clinton, Iowa.

KNOWLTON, I. S., Rock river Nurseries. General assortment. Byron, Ogle Co., Ill.

SCOTT, D. WILMOT, Nurseryman and Florist, Galena, Ill.

MANNING, J. W., General Nursery, Reading, Mass.

HALL, DANIEL L., Madison County Nurseries, Alton, Ill.

HANCE & SON, Peach Trees a specialty, Red Bank, Monmouth Co., N. J.

HANNA, B. P., Nurseryman and Fruit Grower, Luray, Clark Co., Mo.

HARIS & SOMERS, Star Nurseries, wholesale and retail, Quincy, Ill.

CAMPBELL, GEO. W., Grape Vines, Small Fruits, and Greenhouse Plants, Delaware, Ohio.

KELLOGG, GEORGE J., Belle Cottage Nurseries, Janesville, Wis.

LONGWORTH, WM., formerly of Dubuque, Iowa; General Nursery business, Bloomington, Ill.

LITTLE, J. T., Wachusa Nursery; Ornamental Trees, Evergreens, &c.; Dixon, Ill.

LONG, A. & SON, Nursery, Hedge Plants and Early Rose Potatoes, Mt. Carroll, Ill.

MANSON, J. E., Tennessee Nursery, Murfreesboro, Tenn.

MORGAN, E. D., General Nursery business, Pella, Iowa.

MATHEWS, JAS. & SON, General Nursery; choice Grape Vines and Evergreens; Knoxville, Iowa.

MURDOCH, JOHN R. & A., Nurserymen, Florists and Seedsmen, Pittsburgh, Pa.

MADDOCKS, A. W., Great Western Nurseries; established 1847; Toledo, Ohio.

MARSHALL, S. B., General Nursery; specialty, Grimes' Golden Apple; Cleveland, Ohio.

NOURSE, WM. A., General Nursery and Forest Tree Seedlings, Moline, Ill.

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PATTERSON, CHARLES, Hedge Plants and Apple Seedlings, Kirksville, Mo.

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SHEARMAN, J. S., Northwestern Nurseries; Greenhouse Plants a specialty; Rockford, Ill.

SEELY, C. W., Flower and Vegetable Seeds, and Ornamental Plants, Rochester, N. Y.

TERRY, H. A., Nurseryman, Florist, and Fruit Grower, Crescent City, Iowa.

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500 Fameuse or Snow,	460 Limber Twig,
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400 Rambo,	8000 Soulard Crab,
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375 Pomme Gris,	674 Yellow Bellflower,
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THE WESTERN POMOLOGIST.

Pomology, Gardening, Forestry, Horticulture, Rural Architecture, Bees.

Vol. I. DES MOINES, IOWA; LEAVENWOTRH, KANSAS, MARCH, 1870. No. 3.

MARK MILLER,
Editor and Proprietor, - - Des Moines,

J. A. NASH, Assistant,
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J. STAYMAN, Leavenworth, Kansas.

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For the Western Pomologist.

White Hellebore—Remedy for Rose-Slug.

If rose-growers at the West are as much annoyed with the slug as we are here in the East, any remedy for the pest, which can be applied without hurting the foliage of the bushes, cannot but be of interest for them to know. In saying this, we do not forget that many remedies have been proposed, some of which, however, are of doubtful advantage, and others of such a character as to be nearly as objectionable as the malady sought to be stayed. This is true, especially of whale oil soap, which, though potent to destroy slug, may, if not cautiously used prove hurtful to the bushes; and those having a lively sense of smell—a gift generally possessed by rose-fanciers—the contrast betwixt it and the fragrance of a living rose is so great as to be almost an insuperable objection to its being used for such a purpose at all. But be this is it may, and judging from the prescriptions given in the latest works on horticulture, there has not yet been any thing better proposed.

Twenty-eight years ago Loudon recommended the powdered roots of veratrum album, or the white hellebore of the shops, as a remedy for caterpiller on gooseberry bushes, and those who took advantage of his suggestion were satisfied to find it answered their purpose better than any thing previously tried. If this substance is good against caterpiller, it is no less so for ridding rose bushes of the troublesome slug. For this purpose it has been used about here for several years, and with such good effects as to satisfy every one cognizant of the facts that we need seek no farther for a remedy against the depredations of the slug.

The mode of application is easy enough. It is simply to sprinkle it over the bushes from the hand, or out of a dredger, selecting a cloudy day to do it in, or in clear weather in the early morning, at which times the creatures are apt to be abroad feeding, and can be more easily reached than when reposing on the under side of the leaves, as they generally do when the sun shines. It may be as well, however, to sprinke at all times so as to reach both sides of the leaves, and thus leave nothing to chance. One application may be sufficient in a season, provided the eggs are all hatched when the work is done, otherwise it may be necessary to repeat the dose so as to meet the case of stragglers coming up in the rear. It is necessary also that the powder be fresh when used. Of this the operator will have sufficient evidence should any floating particles get into his nostrils, as there it will instantly provoke an irrepressible fit of sneezing. Barring this, and care being taken not to let it into the eyes, I know of no further danger to be appreheuded from its being so used.

Much need not be said regarding the botanical characters of the plant from which this powder is obtained, as such information can be better got from works on pure botany. It may be as well to state, however, that Hellebore, or Helleborus niger, is the Christmas rose of Europe, and is sometimes met with in gardens here, a plant bearing no resemblance to any veratrum. Veratrum album is a native of middle and southern Europe. Veratrum nigrum is from Siberia, from which species the genus has been most appropriately named, its flowers being almost as black as midnight. Both of these species are exceedingly interesting to those who take pleasure in getting together large collections of herbaceous plants, and are beautiful, or otherwise according to the medium through which they are seen. Veratrum viride is quite common about here, growing mostly by the sides of rivulets or in damp glades in the woods. The roots of this species I take yields the white hellebore sold about here; and indeed Wood in his botany has it under that name, while other authorities seem to regard it as possessing much the same medicinal qualities as the album.

A. VEITCH.

New Haven, Conn.

For the Western Pomologist.

Winter and Summer Pruning.

After ten years experience and close observation as to the effects of winter or summer pruning, I have fully come to the conclusion, taking all things into consideration, that winter or early spring pruning is much less injurious to the tree. The last season I had occasion to move some buildings and to make room for them, had to move some large apple and maple trees which were cut up and split into stove wood.

In these I saw convincing proof in favor of winter pruning; the roots of those that were cut off in winter were universally sound, whether healed over or not, to the center of the tree, while those that were cut off in summer, were generally sound on the outside for about half an inch, but from thence to the heart rotten. Since seeing that effect I have given more thought to the subject and carefully compared notes, and although the winter pruned trees presented black, unsightly and generally slow healing wounds, the trees are less injured than those with clean, quick healing wounds made in summer pruning. I have had a great deal of summer pruning done; one vineyard nearly ruined by having the ends of the vines twisted off to stop their rapid growth. It is true that very light summer pruning or pinching will do but little harm, but if done in early spring before the sap starts, it will do less harm. In fact I cannot say that I have ever seen any ill effects from even thorough pruning, if done while the trees are not frozen and before the sap starts. After that until the leaves are fully grown no pruning should be done on any kind of fruit trees.

WM. TANNER.

Leavenworth, Kansas.

In planting out shade trees this spring, do not get them too close together around the dwelling. Plenty of sunlight is important.

Orchard Planting.

Location, aspect, and soil—Preparation of soil—Drainage—Laying out the grounds—Setting the trees—Distance, &c.

The season for transplanting is near, and to assist those of limited experience in such work, we propose some plain, practical directions, and in which we must, of necessity, repeat much that we have said before. No doubt many of our readers are new settlers in the West, and are seeking just the information we propose to give, and, in fact, there is often need of the repetition of old truths and facts to refresh and stir up the minds of the careless and neglectful—such as need line upon line and precept upon precept.

In the commencement of an orchard, the location, aspect and preparation of the soil, are matters of primary importance The worst soils the orchardist has to deal with, are those of a level, heavy, wet texture Rolling land and hill-sides, on some accounts, are considered the most favorable sites. They are naturally drained of surface water, and are less frosty than low, level land. Aspect is of minor importance. Some planters prefer a gentle slope to the Southwest; others an opposite direction, &c. Our preference is a slope or hillside to the Southeast. "Deep valleys, with streams, should be avoided, if possible, as in such places, frosts are apt to prove fatal." But any good land will answer the purpose, whether rolling or level, if naturally dry, or under-drained, so water will not rest long on the surface, or about the roots of the trees. No satisfactory result can be realized where surface water will not readily pass off. The importance of thorough drainage can not be too strenuously urged. It is well known to every observing farmer, that no crop can be successfully grown on land that is subject to a surplus of surface water, that stands for days fermenting and soaring.

Preparation of the soil chosen for the orchard is

contingent upon its condition. But, be that what it may—level, rolling, naturally wet, or dry,—it should be thoroughly stirred to the depth of twelve to eighteen inches, and well manured, if deficient in vegetable matter, as is generally the case with hill sides. Such soil needs enriching for fruit trees no less than to produce a first-rate crop of corn. It is folly to suppose that ordinary soil for fruit trees needs no enriching. An Eastern farmer was once asked why his apples were so much superior to those of the same variety raised by his neighbors. "Because," he responded, "I fatten my apples by enriching the soil around the roots of my trees." A liberal application of wood ashes will produce the most beneficial effects upon the growth and health of orchard trees and vines, let the soil be rich or poor. Ashes can scarcely be used to excess in the orchard; apply broadcast upon the surface about the tree, as far as the roots extend, and partialy work into the soil. The application of half to a bushel to a tree, for five or six years, extending it annually, so as to cover the roots, will produce astonishing results in growth and fruitfulness.

Ground, whether level or rolling, with a subsoil retentive of water, should be stirred as before specified, and then thrown into ridges. Make a land of the space between each of the intended rows, and plow towards each row until broad, permanent ridges are formed, some eighteen inches higher than the dead furrows between the rows, as represented in the accompanying cut.

RIDGING UP.

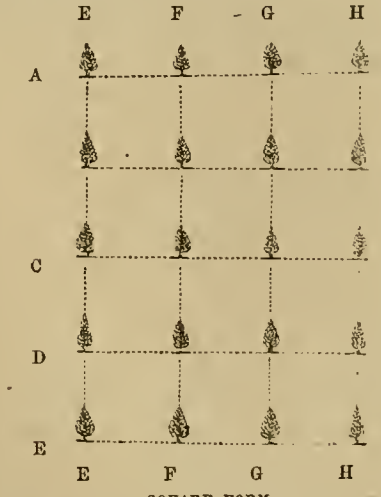
This arrangement of the surface should be a permanent feature of the orchard for all time. To retain it, after-plowing should be in the same direction of (never across) the ridges and dead furrows—plowing alternately to and from. The trees, of course, should be set in straight rows upon the broad ridges, and should also stand in rows across the ridges For convenience in cultivating, after the preparation here described, the trees should not be less than twenty-five feet apart along the ridges.

Under-draining and deep tillage, next to mulching, are the best preventives of drouth. Lands deeply drained and deeply pulverized, possess an increased power of absorption—attracting and retaining an increased amount of moisture, whenever the atmosphere is in a humid state. "Such lands also suffer less, in many seasons, from excessive moisture—for the same qualities which enable them to absorb moisture when there is scarcity, enable them to throw it off when there is a superabundance."

Under-draining excites early growth and maturity of the wood of fruit trees, by the soil being much earlier drained in the spring, and warmed to a degree necessary to stimulate vegetation.—With such vigorous, early growth, the trees harden up their wood nicely for winter, and are in proper condition.

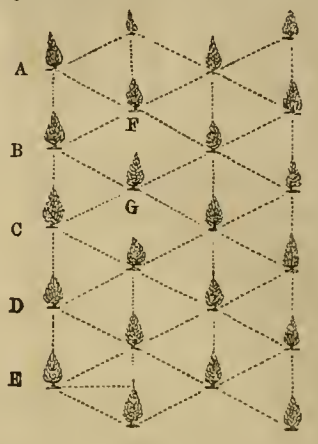
As a general rule, but two forms need be studied in laying out an orchard—the Square, made up of four, one standing at each corner; and the Quincunx, or form of five. The latter has the advantage of distributing the trees more equally over the surface, and thus economizing space, and is more ornamental.

To lay off the ground in the Square form, draw a straight line for the first row. Then, with a surveyor's chain, or a tape-line, proceed to space it off for the trees, and place a short stake firmly where a tree is to stand, A, B, C, D, E. This work cannot be done accurately with a common line, as it is liable to stretch more or less at each measurement. Then at right angles from the first line, measure off and stake a line from each end, E, F, G, H, and E, F, G, H.



SQUARE FORM.

Between the last two stakes in the end rows, measure off and set a line of stakes which will be parallel and opposite to the first row. The interior space of the plat should then be mensured off, and stakes set to indicate the exact point where each tree is to stand. To have an orchard pleasing to the eye, the trees must be accurately arranged. A single tree out of line makes a deformity.



QUINCUNX FORM.

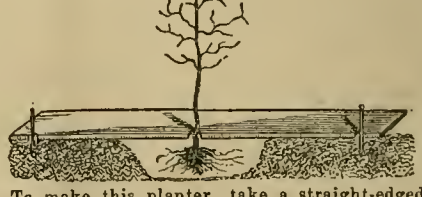
To obtain the Quincunx form, lay off the first row, A, B, C, D, E, as before. Next, hold one end of the line on A, and describe an arc in the direction of F; then from D to F; the intersection of the two arcs will indicate the point F, where the first tree in the second row is to stand. Proceed in the same manner, describing arcs, from D to G, and from C to G, and until the stakes are all set for the second row. The points for the trees in each additional row will be indicated by the ranges and measurements, as will be readily comprehended by a glance at the cut.

The line must be held firm, and the stakes held upright, while the arcs are described Other methods have been given to the public, through the press, but we have found none so simple and so easily executed as our own plan, as here given.

If a surveyor's compass is used, the angle D, A, F, and A, D, F, is 60°; and the form is made by laying off a succession of equilateral triangles from the base A. E, and so on, placing the stakes in the points or corners of the triangles.

If the trees were to be set twenty-five feet apart, the rows A, E, and F, G, would be twenty-one feet and nine inches apart, instead of twenty-five feet, as in the square form. Each tree would occupy five hundred and forty-four feet. In the square form, six hundred and twenty-five feet of surface. Or eighty trees should be planted to the acre, against sixty-nine to the acre if planted in the square form, and each tree stand just twenty-five feet from each other of its neighbors in both cases.

When ready to dig the holes, the stakes must be removed. But afterwards they must either be re-set or their exact position indicated by some device, by which to set the trees. It is a good deal of trouble to re-set the stakes, or to sight the rows to get the trees in line. To avoid this use the Tree Planter.



To make this planter, take a straight-edged board, six to eight feet long, six inches wide, and

a half inch thick; cut a notch at the center of one edge, and near each end, equi-distant from the center notch, make a similar notch on the same edge. Lay the board on the ground, and place the center notch against the stake where the tree is to stand, and, stick down a small stake in each of the end notches. The center stake and board may then be removed, and the hole dug. When ready to set the trees, the board is placed over the hole, with the end notches against the two stakes. The center notch will indicate the precise point where the tree should stand, and at the same time help to steady the tree while filling in the soil about the roots.—This simple and useful contrivance is an invention of our own, and enables the workman to plant each tree of a uniform depth, and in the precise position indicated by the stake.

The following table shows the number of trees or plants that may be grown upon an acre of ground from 1 to 24 feet apart:

FEET.	TREES.	FEET.	TREES.
1	43560	13	257
2	10890	14	222
3	4840	15	193
4	2722	16	170
5	1742	17	150
6	1210	18	130
7	889	19	120
8	680	20	108
9	537	21	98
10	435	22	90
11	360	23	82
12	302	24	75

The ground having been made ready for the trees as specified, the next step is to prepare the holes for their reception. They should be dug of sufficient depth and breadth to receive all the roots of the tree, without crowding or bending them un-naturally, and the bottom soil made mellow some inches deep. The hole being ready, take the tree, and with a sharp knife prune the ends of all the roots, from the under side, with a sloping, upward, clean, smooth cut. Planted in this condition, the ends of the roots will speedily callous, and push out therefrom a system of new roots, much sooner than if left roughly cut by the spade.

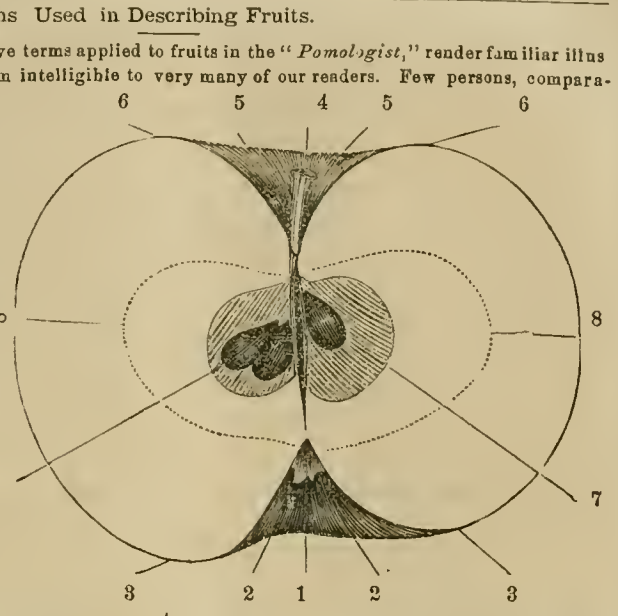
The tree should be placed in the hole, upon the mellow soil, so as to stand four to six inches deeper than in the nursery. It should be held by one person, while another arranges the roots in their natural position, and with the hand work in mellow soil among them. As the filling up progresses, give the tree a slight movement up and down, to more thoroughly work the soil in among the roots. Great care should be taken to keep all the roots in a natural position when packing the soil around them. After the hole is full, and the soil pressed down and leveled up, the work should be finished by adding a good coat of mulching.

If the ground be dry at planting time, a liberal use of water is all-important. Thoroughly saturate the soil about the roots as it is packed in. In fact, we advise the free use of water in setting trees and vines at all times—without regard to condition of soil—wet or dry. The roots are more thoroughly imbedded in the soil. No work about tree planting pays better.

SEED FROM GRAFTED POTATOES.—It is known that grafting seedling turnips causes them to change the colors of the bloom, and it is a question whether by grafting a potato the seed saved from the graft would not imbibe more or less of the character of the root, and when sown and grown produce a combining more or less of both varieties.—In this potato seedling age, experiments are worth trying.—*Western Farmer.*

Terms Used in Describing Fruits.

The frequent use of descriptive terms applied to fruits in the "*Pomologist*," render familiar illustrations necessary to make them intelligible to very many of our readers. Few persons, comparatively even among those pretty well posted on fruit matters, can take in hand an apple and apply to its several points proper descriptive terms. To enable the reader to fully understand the terms in frequent use, we herewith present illustrations with explanations such as will make the subject familiar.



1. CALYX—The remains of the flower left at the end opposite the stem.

2. BASIN—The depression aronnd the calyx.

3. CROWN, on SUMMIT—The ridge surrounding the calyx.

4. STEM—The part connecting the fruit to the twig of the tree.

5. CAVITY—The depression surrounding the stem.

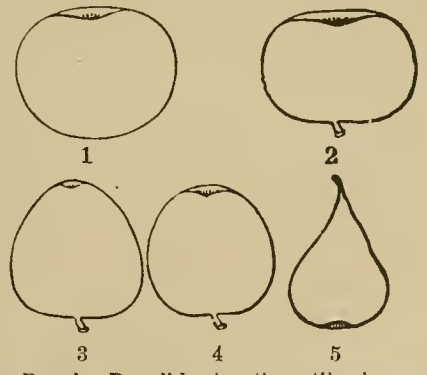
6. BASE—The part most remote from the crown.

7. CORE—The cavities in the center of the fruit containing the seeds.

8. CORE SURROUNDINGS—The dim lines in the flesh, which partly or wholly surround the core.

FLESH—The edible portion of the fruit.

Descriptive Terms Applied to Fruit.



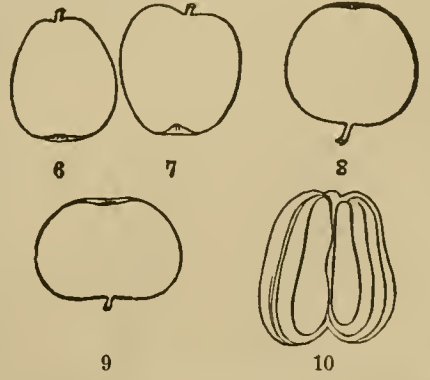
Round or Roundish, when the outline is round or nearly so, fig 1.

Oblate, flat or flattened, when the hight is much less than the breadth, fig 2.

Conical, when tapering from the base to the apex, fig. 3.

Ovate, or egg-shaped, when the length rather exceeds the breadth, with a rounded taper from base to apex, fig. 4.

Obconic, or reversed conical, when the smaller end is at the base or stalk, fig 5.



Obovate, or reversed ovate, is when the smaller end of an egg-shaped fruit is at the base, fig. 6.

Oblong, when the length exceeds the breadth and the sides are nearly parallel, fig. 7.

Round-ovate, when nearly round, with a slight rounded taper to the apex or crown, fig. 8.

Oblate-conical, fig. 9.

Ribbed, when the surface presents a series of ridges or furrows, running from eye to stem, fig. 10.

The Government Garden.

One of the editors of the New York *Tribune*, visiting Washington, thus writes:

Among the attractions of the capital is the government garden, under the charge of Wm. Saunders; and his management of pear trees is worthy of note. It is simply to plant on good ground, give fair and clean culture, and let them grow. Pinching, pruning, and all those scientific and complicated directions derived from the French and adopted by our orchardists, he considers worse than useless, for he attributes blight and other diseases to this treatment. Whether right or wrong, he has an argument in his favor which ought to weigh—the trees grow as "unconfined as Nora's tresses;" blight is unknown, and all varieties are loaded with fruit. It may be said that his plan suits such a latitute and soil as Washington; if so, let it be adopted there and let pears be grown for the supply of the country. The finaa erieties of grapes are also grown here without any disease, by placing two boards like a roof, along the top of the trellis.

I was surprised to see the China teaplant growing vigorously in this garden. Mr. Saunders said it had stood without protection several years, and now it would seem that the growing of tea in this country is not to be considered with reference to the climate of Tennessee, or any other Southern State; but as to whether the people desire to grow it. I can see no difficulty in almost any family, at least south of Philadelphia, and, perhaps, even north of it, growing their own tea, and, if they are real lovers of tea, they ought to take the little care and trouble required, for, if they do, they can have an article only equalled by such as is obtained in China itself, free from adulteration, and unaffected by the long sea voyage.

It is customary for some agricultural writers to disparage this garden, but I think they are unwise, and that they ought to be glad that among the appropriations for so many objects, horticultural and like interests obtain a small share, and I am certain that the country ought to receive great benefit therefrom.

Reported for the Western Pomologist

Wisconsin State Horticultural Society—Annual Meeting.

MARK MILLER—*Dear Sir:*—Our State Horticultural Society has just closed one of the most pleasant and profitable annual meetings which it has ever been the good fortune of the fruit growers to hold. This is the culmination of labors in the right direction. How changed the scene since you, Mr. Editor, was an active member of the Society and assisted in its first organization. For the last few years new life, new fruits, and new energy has been imbued into its existence; and few, if any, organization of fruit growers can be found that will show a more enthusiastic set of men than were found at this State Society's Annual Meeting, where with an attendance of from fifty to seventy-five of the best representative men of the State, the fruit interests did not falter, but got such an enthusiastic good cheer that great good cannot fail to follow. Our friends from Northern Illinois were here, and our meeting with them was "good" to all in attendance.

The meeting convened on Tuesday evening the 1st. Mayor Leiteb and President of the City Society, delivered an address of welcome. President Hobbins then read his annual address, written in his usual easy and happy style. Congratulated the Society upon its perfect harmony of action and success of its exhibition for the past year; very discouragingly of tree peddles, as a pestilence to be shunned, if we would succeed in having the nomenclature of our orchards reliable and would hope to have an orchard. His experience with Eastern horticultural journals has not been satisfactory, and counsels not to be guided by their teachings, but let the West educate from the multitude of her teachers. Our climate, soil, and practices are so widely separate, that he, the President, could hardly hope for much good to come out of the East. Urged the appoint ment of an Entomologist. Also to memorialize the State Legislature for assistance to enable the Society to complete the system of experiments now commenced in their experimental garden—"the only garden of the kind under the auspices of any State Society." And surely the object is a good one, and if managed right would result in much value to the entire West.

The Secretary reviewed the year's progress and noticed with pleasure one marked token of horticultural progress, viz: the demand for horticultural reading; that it was very greatly upon the increase. The WESTERN FARMER was vastly improved, and now the WESTERN POMOLOGIST claimed its share of public favor. From this he argued that there was progress in store, or the demand would not sustain the effort. Urged the giving or using of more horticultural works, both papers and books, for premiums at fairs, as a means of educating the people and promoting one of the highest branches of the industrial pursuits

Reported nearly two thousand plants, trees and vines growing in the horticultural experimental garden; explained wherein it had thus far fallen short of the objects of its founders, what its aims should be; and said another reason for requiring the continuance of this work is that we may have some place where all the old and new sorts may be congregated, worked in some manner so that they will fruit at the earliest possible moment, and by comparison of sorts very much can and would be done to correct the nomenclature of our present list, and these lists so corrected should become the authority of the State.

This garden in time should grow to an influence of no mean proportions. Imagine for a moment, a thousand varieties of apples growing there, five hundred of pears, one hundred or more plums, and as many grapes and strawberries; not to mention other fruits, ornamental trees and plants. With a managing committee of say three of your best pomologists and botanists, whose duties should be to visit as often as might seem necessary, the garden, comparing the various fruits and noting its progress and condition. Will any one present say that such a work is not worthy your best efforts? Might it not become a labor of love of this Society and the pride of the State, to which other States may point with envious pride? Still another benefit, and one which to my mind is of incalculable benefit to the State is, the influence it would have upon young men, students, who will see with honest pride the fruit resources of their State, and in their leisure learn to study its development, from this the fruit sections or localities of their own homes, and when they leave their college life they have learned what the books do not teach—practical horticulture—its effects will be known and read of all men in the renewed activity in tree planting.

The Treasurer's report showed a balance on hand of $326.31, which was considered very satisfactory. Wednesday morning the fruit was placed upon the tables, and resulted in the filling of about three hundred plates of apples, pears and grapes, all in very fine condition. Surely a feast of good things, fit for any epicure to look upon, and was very creditable to the fruit growers of a "non-fruit growing State,"—as the croakers are wont to call Wisconsin—and elicited much praise from members and State officers present.

Upon the question of dividing the State into fruit districts, there was a lively and interesting debate; and while all admitted its advantages, it was conceded that for a lack of knowledge, it could not be satisfactorily done at the present time. The effect of soil upon the health and hardiness of different trees was presented much more forcibly to the minds of the members than ever before. Mr. McCaffee, of Freeport, Illinois, cited the fact that the Rock River country, known as the Galena limestone country, would not grow plants and trees that would survive the rigors of the climate but a few miles away, and instanced the quince, or pears and quince. And here grapes require more protection.

Mr. Tuttle thought the State might some time be divided, and that we would with experience be able to have a list for the damp lake regions, one for heavy clay lands and another for the sand. Some sorts were better adapted to the one than the other, while some are equally good in all. Mentioned the Fameuse as one of the very best in Central Wisconsin; the dry atmosphere seemed just the place for it, where it was one of his best, while it was the reverse in Michigan and New York, and even his own *improved* trees did not do as well the past damp season as usual.]

Judge Knapp thought the soil had very much to do with the success of trees. Some varieties will grow to perfection where others equally as hardy will not grow at all.—But owing to the geological character of the State, one portion having been divided and another covered with the drift of the glacier period, great diversity must exist, even to an entire change of character in the distance of a few rods. Much interest was manifested in this subject, enlisting the study of the members as to why a fruit succeeds in one locality and dies in another but a few rods distance; which was very briefly answered by Mr. Tuttle, that some do well on the rich soils of the prairie, or even stimulated opening soil. Mentioned the Yellow Bellfleur and Wagoner of this class, but must be planted upon the lighter well drained soils. Expressed himself much pleased with his experience thus far with the Russian sorts. They adhere to their native characteristics of leaving out very late, even after the others were well advanced, then with great rapidity of growth till they ripen their wood by the middle of August. The revised fruit list of apples as the best five, from which there was not a dissenting voice, and which hardiness is the first requisite, but in this case they also are unexceptionable in quality, are Red Astrachan, Dutchess of Oldenberg, Fameuse or Snow, Tollman Sweet, and Golden Russet.

A second list was then adopted as worthy in most respects, but to which there might be instances of failure, but nearly equal in every respect to the first, viz: Sops of wine, Fall Stripe, St. Lawrence, Fall Orange, Plumb's Cider, Perry Russet, Willow Twig, Red Romanite, Blue Pearmain and Seek-no-Further.

Still a third list for trial: Sweet June, Tetofsky, Lervelle, Baily Sweet, Gross Pommier (Haas), Paradise Winter Sweet, Cable, Gillfleur, Ben Davis, N. Spy, and Raules Jannette.

In view of the season, small fruits were not as thoroughly discussed as at some former meetings. Delaware and Concord stand at the head of the list. Others were urged for trial. The President remarked that all his grapes mildewed except the Delaware, but he was not going to dig them up. Mr. Tuttle has always raised the Isabella till this year. No mildew on the Delaware.—Thinks some of the Rogers will take the place of the Concord. Hartford Prolific ripened but Iowa did not. Mr. Laurence thought the Rogers No. 15 was as valuable as the Concord, and praised many of the others.

Strawberries were divided into market and family. For market—the Wilson and Green Prolific. For family—Agriculturist, Russell's, and Burr's New Pine.

The Green Prolific had some very high encomiums. Mr. Greenman remarking that he could get as much fruit from one rod of them as fifteen rods of the French.

Currants had been badly blighted, and it was thought best to let the list pass without debate.

The Doolittle Raspberry was retained first on the list for market. Miami as market and family. Also Philadelphia and Purple Cane. Davidson's Thornless for trial.—Messrs. Stickney and Hoile each spoke in high praise of the Ancient Britton Blackberry, in quality of fruit and hardiness.—This, with the Clark and Wilson were placed on the list for trial.

Thus I have endeavored to sketch as briefly as possible the results arrived at and the conclusions drawn from the experience of the year's lessons. That the meeting was a success, only expresses in a mild manner the enthusiasm exhibited by those present. There were many valuable papers read, viz: G. Emerson, of the Western Farmer, upon the production of new varieties, showing that this may be done in three ways: Selection of native varieties, new seedlings, and hybridization. He argued that rapid growth though desirable, was not a sure criterion to follow. The first requisites are hardiness and productiveness, and the parent stock is not to be ignored if hardy and fruit be good, though not of the most thrifty nature. He cautioned the nurserymen in disseminating new varieties not fully tested. And in the multitude of new sorts now being offered to the public, the experimental garden presented a good and valuable field of labor for the benefit of the State.

Dr. Andrews, of Marengo, Ill., read a very interesting paper upon the origin and dissemination of the Siberian species of apples, so eminently reliable to the entire Northwest. A lively discussion followed.—Mr. Stickney thought we had crabs enough and these should be confined to the lower six rounds of the ladder. But Mr. McAfee put in a rejoinder, and picking up an inch and a half crab held it up, and in triumph said: "Nay, the time is coming when our fruit ladder will have one hundred rounds, and crabs will be perched upon it all the way up, and topmost of all we will find one *three times the size of this.*"

Mr. Scofield presented a paper in which the whole West is interested, viz: The necessity of an organized action among the horticulturists to secure the exemption of foreign trees and seeds from tariff duties.—He prefaced it with some remarks showing with what rapidity all timber grew at the West, and the necessity for providing for its encouragement by removing every obstacle to its cheap production.

Mr. McAfee, of Stephenson Co., Illinois, read a valuable scientific paper upon the timber of that county, detailing their uses, &c. Illustrative of his subject he presented a Lignarium of that county, consisting of 120 species, 45 genera. This is a valuable collection and worthy of imitation. Suel Foster's paper upon pears will appear in its proper place in the Transactions, as well as Mr. Stickney's upon small fruits, Mr. Plumb's upon how we grow our trees, and Mr. Kellogg on how to sell our trees.

The nurserymen present offered liberal inducements to all to become members for the year, thereby securing for themselves a liberal stock of fruit, vines and ornamental trees. A circular containing the particulars of the offer will be mailed on application.—With a happy retrospect, *we* may recall the first meetings of the W. S. H. S. in 1853, '54, '55, etc., when with a half dozen members they hoped onward, until now a large and enthusiastic gathering assembled, to do Pomonas bidding. And after a three days' session the fruit growers went their way, feeling that it was good to have been here.

O. S. Willey, *Sec.*

Madison, Wis.

California Fruits—Flavor, etc.—H. G McPike, an Illinois horticulturist, who visited California last season, says:—"Apples, large and fair in flavor, not quite equal to ours. Pears, no better in flavor, but larger and higher color. The Tokay grape sells in market for thirty-five cents; Muscat and Black Hamburg, fifteen cents; Mission, eight cents. Found Mission grape selling in bulk for 1½ cents, for brandy. Their vineyards are laid off something like ours; they use no stakes; vines grown from stalk about a foot high, from which they are permitted to shoot off and hang to the ground. The vineyards have the appearance of a blackberry patch; you wade among the vines in search of grapes; each cane of the Mission has from three to eight bunches. They have no rain from the time the grapes bloom until they are picked. At one place I saw Catawba and Isabella growing on trellis. I think they have the advantage of us in raising grapes, but none in pears. I could see no depredations of insects there, or at Salt Lake. I think they are not flattered with the prospect of fruit-growing for profit. I took some pears and some Catawba grapes along for comparison. Their pears are no better. Their Catawba grapes may be a little sweeter; I think they are They claimed in San Francisco that their early pears were better than the later ones"

Growing the Pecan Nut.

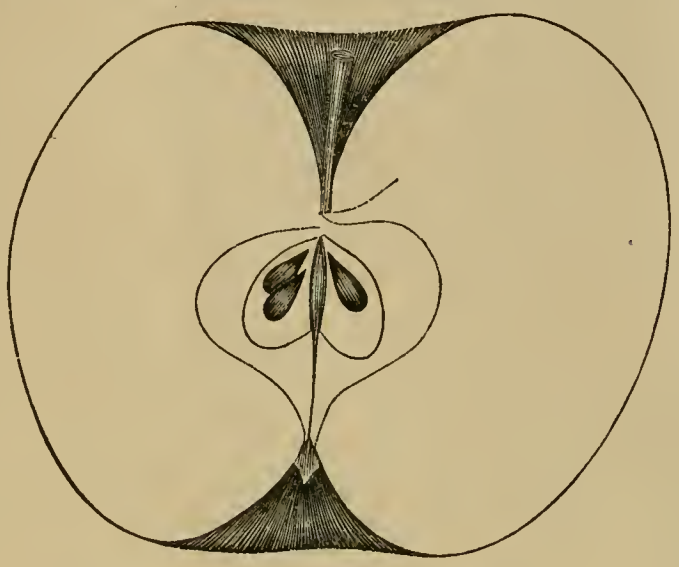
To an inquiry concerning the propagation of the Pecan tree, the Southern Horticulturist gives the following reply.

The Pecan tree, (*Carya Olivæformis,*) belongs to the Hickory family and like all the species of this genus has perfect blossoms. Hence it is a self-fertilizer and every tree is productive. It is almost invariably propagated by *seeds*—as neither the hickories, nor walnuts succeed very well by grafting. In fact it is, by most cultivators, considered impossible to propagate them in this way but we have frequently grafted them, and always with satisfactory success. Still we do not recommend this mode of propagation as the Pecan reproduces its good qualities very generally from the seed, and by a judicious system of root pruning and transplanting, may be brought into bearing quite as early as from the graft. The time of coming into bearing varies a good deal, but on an average is not much greater than the apple—certainly not longer than the pear—say from eight to twelve years. This period may be considerably shortened by root pruning or transplanting every two years, and giving the trees good, rich, deep cultivation. In orchard culture the trees should be planted twenty by thirty feet and trained to a single trunk six feet high. At setting out the branches if any, should be pretty thoroughly shortened in—afterwards no pruning will be necessary. As to transplanting, we have found it no more difficult than with standard pears. But to insure the greatest measure of success, the tap root of the seedling should be cut off about the first of August of the season's growth and the first transplanting done at not over two years old. For planting, always select the largest, thinest shelled and best flavored Texas Pecans you can find—plant them in this latitude any time during Jan. or Feb. in shallow drills on slightly raised bed and cover an inch deep with a mixture of sand and leaf-mold. Unless the season should be remarkably wet and cold the young plants will be out of the ground and fit for the first working by the first of April. No freezing of the nuts is necessary but they should be *fresh*, i. e.—of the preceeding year's growth. The trees as before stated, are never grafted for sale—but good seedlings of two to four years growth can be bought at Southern nurseries for about $50. per 100—perhaps less. Any good *hickory* soil will suit the Pecan, and they will succeed first-rate in the "bottoms" or rich ridge soils of Florida, Texas or even Mexico. Ashes (nard wood) and leaf-mold are the best manures. At fifteen years old they ought to bear a bushel of nuts each—and live forever.

Good Texas Pecans now sell readily at $25 to $35 per barrel at wholesale, At full maturity a tree will bear from 1 to 2 barrells. What better inheritance could a parent leave to his children than an acre or two of bearing Pecan trees?

Missouri Pippin, 8 ozs. (*Mo. Keeper*, WARDER.)

This apple has been known under this name for more than ten years at and around Independence, Mo. It has been in cultivation in Kansas nearly that time under the above name. Dr. Warder has described it in his work under the name of "Missouri Keeper," but by what authority we do not know. We think there is no doubt that it is a seedling of Missouri; at least we have never seen or heard of anything like it. It is worthy of introduction.



Fruit, medium; weight 6 to 9 oz.s; form round, irregular, oblique; skin smooth, shining, yellow, mixed, shaded, marbled and striped with light and dark red; dots numerous, small, gray; stem medium to short, slender; cavity regular, wide and deep; eye small, nearly closed; basin abrupt, deep, regular, furrowed; core small, compact; capsules medium; seeds small, short, plump, quite dark; flesh yellow, tender, juicy, pleasant, sub-acid. Quality only good: use, market and kitchen. Season—January to July. Dr. Warder says: "Specimens cut on the 25th of June were in perfect condition." Tree vigorous, healthy and hardy; bark, dark brown; very early and abundant bearer. Origin, supposed to be Missouri.

We consider this apple worthy of cultivation in Kansas and Missouri, it being such an early and abundant bearer and quite handsome, will always command a fair price. Excellent for shipping in the spring on account of its fine color and great keeping qualities.

WEIGHT AND SIZE OF APPLES.

We have adopted a scale from one to seven, as follows:

Under two ounces, very small.
From two to four ounces, small.
From five to seven ounces, medium.
From eight to ten ounces, average.
From eleven to fourteen ounces, large.
From fifteen to twenty ozs., very large.
Over twenty ounces, monstrous.

We give the weight of the apple the cut is taken from, consequently if large or small it will show by a comparison of the scale and the average size of the apples, which are also designated in the description. I find this necessary, as our apples are much larger than Eastern. What is large there would not be here.

KAN. ED.

—Worldly pleasures are no more able to satisfy the soul than the light of a candle to give day to the world.

For the Western Pomologist.

More about the Cherry—Mahaleb vs. Morello.

Unless by a fair comparison it shall be decided by a majority of our pomologists, that the Morello proves generally better than Mahaleb, I think the latter ought to have the preference for general purposes, and for reasons which few will gainsay. I will name two of them. In the first place the Morello is not, so far as I know, grown extensively, if at all by nurserymen, from the seed. I do not remember to have seen them advertised in any catalogue. Then how are cultivators to supply themselves with this stock where there is an extensive demand? They must obtain whatever they can by traversing neighborhoods, hunting and digging all the sprouts they can find which have come up from the common Morello, with roots large and small, a few having fibers, and the rest having none. Some of them oblong, some square, some triangular, and some having no shape whatever; with tops too, quite as various as the roots; some being tall and some short, some straight and others crooked, some one year old, some two, three or four, and some of bearing size. Of course the latter, if top grafted, will bear sooner than a graft or bud on a Mahaleb stock one or two years from the seed.

But as a second objection, the common Morello sprouts from the roots as badly as the black locust or ailantus, either of which, on this account, is a nuisance in a yard, garden, or town lot, where the cherry is generally grown. I have heard it said, the more you doctor a sick sheep the worse it gets. Just so with these sprouts, the more you dig them out the more they multiply.

The fact is, all must admit, that it is out of the question to approximate to neatness in a door yard or garden, after the Morello has been planted long enough to commence sprouting, which is usually not a great while, I would only recommend them, therefore, for nurserymen who decidedly prefer these sprouts as a stock to graft upon.

By digging their own door yard, garden, and cherry orchard over once a year, including also the grounds of all their neighbors, whose trees are on the Morello stock, they will obtain a short supply of roots for the propagation of the Early May Cherry.

But I must ask pardon, Mr. Editor, for this digression. I intended when I commenced this article to have discussed the question of varieties; that is, to enquire what kinds, besides the Early May or Richmond, if any, may be grown profitably in Iowa. I have already, however, made this article too long, and must defer that subject, which I think ought to engage the attention all fruit growers, to another time.

JAMES MATHEWS.

Knoxville, Iowa.

For the Western Pomologist.

What Opens Fruit Stones?

It is generally understood, in the North particularly, that fruit stones, or pits, must be exposed to the action of frost to prepare them for germinating, consequently these are generally planted in the fall, to give them the benefit of the winter's frost; but sometimes they are cracked by hand in the spring, when they are planted. Each method has its advocates, and perhaps its peculiar advantages. The first method seems to be attended with the least trouble and labor, while, it is said that the second accelerates the period of germination and subsequent growth. In the former method I am inclined to think that one grand principle has been overlooked, to which I will merely refer, and upon which I may say more before I close. I refer to the part which water performs in this somewhat mysterious operation of nature. It may be a matter of some little importance for us all to understand this matter; therefore it may may not be wrong to excite a little public interest and curiosity in relation to the subject, and endeavor to draw out from some of our learned professional horticulturists, or others, a little scientific information. There is no doubt but nature does, under certain conditions and circumstances, employ Jack Frost to perform the labor of which we are speaking. But, is that the case in a Southern latitude, where they have little or no frost during the whole year? I think such cannot be the case.—We must, therefore, assign some other cause, find some other cracking agent, in a climate where frost cannot be relied upon for that purpose. What cause shall we assign?—May not the whole secret be revealed by keeping the fruit stones moist from the time they mature until they germinate? That is the way nature performs the task in climates where there is not sufficient frost to accomplish it. She drops the fruit upon the ground,

where it is subjected to the action of the weather, and kept moist until the fruit decays and the season of germination arrives, when it springs forth without farther trouble or delay.

There are many shell seeds in the North which are very much retarded in germination and growth, by being allowed to dry before planting. The chestnut, it is said by those who claim to know, should not be permitted to dry when intended for seed, as its germinating powers are thereby very much injured, if not entirely destroyed. The soft maple seed should be gathered and planted as soon as it matures. It will then sprout like corn, and come as soon and grow several feet the same season; when if allowed to dry before planting it may not come up at all; or at least until the next spring. It is not the frost which causes it to germinate, but the continued moisture. Nearly all of our field and garden seeds are hastened in their early growth by being soaked in water; and, sometimes hot water is far preferable to cold. The germination and early growth of onion seed and peas, as well as other seeds we might mention, are materially accelerated by being stirred in hot water until it becomes cold. Perhaps the hydropathic practice might be resorted to, with success, in all cases where frost is wanting, in relation to both fruits and vegetables. If that practice will succeed in one climate, why not in another? I am strongly inclined to believe that it would, although I would not deny that it might require a longer time than freezing. We know that a very slight action of frost is sufficient, when connected with moisture, to insure a speedy germination, while perhaps, without the frost, many months might be required, and germiuation thereby delayed. The course of nature teaches us a very important lesson in relation to this matter. She does not lay up her seeds to dry, but plants them, partially, as soon as matured. We cannot expect to gather our fruit stones and lay them up to dry, and have them germinate as speedily as if kept moist, in imitation of nature. Frost will not effect them, if kept dry, no matter how cold the weather. They will dry as well, but not so fast, in cold weather as in warm. They require moisture, under any circumstances, unless artificial means are used to open them. Thus, we see that frost alone is entirely insufficient to accomplish the object desired, anywhere.—That frost cannot be an indispensable requisite, for that purpose, in a warm climate.—That nature has so arranged the matter that seeds of all kinds will germinate in all climates.

Now, will any one be kind enough to inform the public what single principle, or agent, will accomplish that object alone?—Or whether the combined action of several is necessary? There is a misapprehension in the public mind in relation to the matter; and, perhaps a smattering of scientific information might disabuse it very happily and advantageously.

S. Lombard.

Dongola, Ill.

For the Western Pomologist.

How to Raise Forest Trees.

To have success in planting tree seeds, the following conditions must be observed.—First, the seeds must be fresh, and then be planted as nearly as possible in nature's way. She does not plant them deep as people plant potatoes and corn, but she covers them very shallow with a coating of autumn leaves, which affords the best possible protection for the seeds, which generally germinate successfully with the warmth of spring. Therefore we should bear in mind not to cover them too deeply. As a general rule, as deep as the seed is thick will answer, and then the covering should be very light and friable; leaf mould, leaves, rotten straw or grass, or some such substance. When tree seeds cannot be planted as soon as ripe, they can be kept for a time in nearly dry sand, being careful not to put too large quantities in a mass. It will be useless to plant seeds of walnuts, hickories, oaks, chestnuts, hazle nuts, and such like, after they are thoroughly dry, as they will not vegetate. Some seeds vegetate as soon as they fall to the ground, without any covering whatever; among which are the white elm, red and silver maple. Perhaps most failures are to be attributed to planting too deep and on unsuitable soils. Give each kind of seed its natural soil as near as can be. The swamp trees do not grow well on dry land, and vice versa.

I will give a list of trees for particular soils, and some directions how to manage evergreen seeds, which are more difficult to grow than the seeds of decidious trees.

Trees for Different Soils—Evergreens from Seed.—For dry clay soil: white oak, red oak, sugar maple, beech, &c.

For wet clay loam: Burr oak, swamp oak of several kinds, linden, white ash, red ash, black ash, red and silver maple, honey locust, white elm, hickory, &c.

For dry sandy land: Pitch pine, red pine, Jersey pine, red cedar, &c.

For rich or moist sandy loam: Black walnut, butternut, hackberry, hemlock, spruce, firs, magnolia, papaw, buckeye, sweet gum, larch, &c.

The best plan to raise evergreens from seeds is to prepare a bed of sandy loam, (one-half sand and one-half leaf mould) on the north side of a building or high fence; around it boards should be set edgewise, so as to be a foot above the bed; in this bed plant the seeds in the fall or spring, barely covering them. They must not get too wet or dry. A person can regulate the moisture and shade by having narrow strips of boards, not over three inches wide, to lay on the frame, leaving space between as required by the weather, or the whole can be covered with glass or muslin, always giving air to the plants.

W. C. Hampton.

Mt. Victory, Ohio.

Vegetable Physiology.

The science that defines the nature and structure of the tree or plant, has much to do with skill in cultivation. By making ourselves familiar with the elements necessary to the vigor and development of the various parts, we are enabled to judge of our means to develop or promote the vigor and health of the whole. The production of fruit is the desired result; the tree must be kept in a healthy, vigorous state; each series of organs must be efficient to produce the ultimate object; climate, soil, nutritive matters in the soil, due regulation of the wood and fruit systems, the checking of the undue developments of wood buds to the neglect of fruit buds, and the tendency on the other hand to the production of fruit spurs to the leaf system; the proportionate amount of roots to branches, the promotion of the general healthy growth of leaves, as well as all other indispensable auxiliaries to the health of the tree, must be carefully preserved and promoted.

We must see to the propagation of healthy trees, and these secured, preserve them in that healthy condition.

The growth of roots, branches, and leaves, are so closely related that we need only state, in passing, that these depend on skill in propagation, either by seeds, cuttings, layers, buds or grafts.

The normal mode of propagation is by seeds. This is the favorite plan of nature, so far as we may judge by natural indications. Like all her unerring laws, this appears to have been made immutable, that like should produce like; that the herb and fruit tree should bear seed, in which is secured the elements of reproduction. Man was not limited to this means of multiplying individuals, the *gemma* or bud possessed, he discovered all the rudiments of the tree under certain conditions, and from the eye or bud we now multiply fruit trees with unerring precision, each individual a counterpart of its parent. The seed is still the chief reproductive agent in our food-producing grains, or cereals, and in many of the more minute forms of vegetable life. When we observe that each fruit of the apple encloses in its well-protected core or ovary, from five to ten seeds, and that a single full-grown tree will produce fifty bushels, the unlimited means of propagation become apparent. We have only cited the subject of physiology to press its importance on the cultivator. Without a competent knowledge of its laws, he will attempt in vain to become an intelligent fruit grower.—[Cor. Gardner's Monthly.

English Demand for Beeswax.—A circular issued by A. S. Macræ, Produce Broker of Liverpool, Oct. 26th, calls attention to the extensive demand in Europe for American beeswax, as follows:

American apiarists are perhaps not generally aware of the enormous consumption of the above article in Europe, and the pre-eminent value of the United States' supply. Independently of the very large yield of mineral and vegetable waxes, England alone must consume some 2,000 tons a year, to the value of, say $2,100,000! Its worth is assessed by color, purity and melting point, and the latter process readily exposes adulteration or foreign matter. To-day's quotations, taking gold at 131, are as follows, viz:

American bright pressed yellow, 45@51c.
American rough mixed yellow, 43@43¾c.
West India yellow, 41¼@53¾c.
East Indian yellow, 41¼@43¾c.
African yellow, 36¼@41¼c.

As an instance of the consumption, it may be mentioned that one European palace alone is said to burn ten thousand wax candles nightly!

THE POMOLOGIST.

More Compliments to Kansas Fruit Growers.

The following which transpired at the February meeting of the Leavenworth County Horticultural Society explains itself:

To the Leavenworth County Horticultural Society:

MR. PRESIDENT,—In September I forwarded to my native State, New Hampshire a few specimens of Kansas fruit with the desire that they would be exhibited at the State Fair. I sent them simply to show my friends that bleeding Kansas, with drouth and grasshoppers, was a blooded State, and would show as fine specimens as her older sister States.

The specimens on exhibition were as the leading papers of New Hampshire say, the most attractive feature in the fruit line there. The result was that a few weeks ago I received a diploma from the New Hampshire State Society which they awarded the fruit, and which I present to your Society with my best wishes. Most respectfully, your's, B. E. THOMPSON.

The Prisident, on behalf of the Society, made the following reply:

MR. THOMPSON, *Sir:*—Allow me in behalf of the Leavenworth County Horticultural Society, to express to you and your good lady the warm and heart felt thanks of its members for the rich diploma which you have done them the honor to present on this occasion. Scarce seven weeks have elapsed since our State Society was honored by the presentation of the Great Gold Medal of the Pennsylvania State Society for the exhibition of fruits grown in Kansas, which were unsurpassed by anything shown in the city of Philadelphia, at the great national show of 1869, for size, beauty and excellence of flavor. And now, sir, the State of New Hampshire has stepped forward and given the fruits of Kansas, grown in Leavenworth County, a high and distinguished character, by awarding to your friend, Mr. Shepherd, who exhibited the fruits, this splendid diploma, as an evidence of the high appreciation in which those fruits were held by her State Agricultural Society. This award for fruits grown in Leavenworth County, when she was placed in competition with a whole State, (perhaps with many,) is as flattering to our *fruit growing* pride, as was the gold medal to the State Society.—Will you now, sir, together with your good lady, return to the State Agricultural Society, of New Hampshire, through your friend Mr. Shepherd, our kindest regards, for having so distinguished our county, for fruits of great size, beauty and excellence.

GRAPE GROWERS MEETING.—The third annual meeting of the Mississippi Valley Grape Growers Association will be held at the office of the St. Louis Fair Grounds, April 6. The meeting will convene at 10 A. M., and continue in session two days. The Planters and St. Nicholas hotels will entertain members at a reduced price from regular rates.

Members, and all grape growers, are urgently solicited to send in statistics for 1869. 1st. The number of acres, or number of vines planted in the year, and distances apart. 2d. The number in bearing. 3d. The total number. 4th. The amount of grapes sold, and average price. 5th. The number of gallons of wine made. 6th. Extent of injury sustained by unfaverable weather, insects, birds, etc.

BURYING APPLES IN PITS.—A correspondent of the *Western Farmer* says Col. David A. Lee, of the town of Marquette, Green Lake Co., Wisconsin, having raised 2.000 bushels of apples the last year, has now (March 1st) 100 bushels of the Gilpin apple buried, the apples being covered with about one foot of straw, and over this about four or five inches of earth, in the manner commonly adopted in burying potatoes. He confidently expects these apples will come out in good condition June 1st. Last year he sold apples, of this variety, buried in this way at $1 75 per bushel.

For the Western Pomologist.

The Sugar Maple.

MARK MILLER, *Dear Sir:*—Hes the Sugar maple any enemies in this country? or is there any reason why it would not pay to put out a grove of 25,000 of them for beauty, shelter and a "sugar bush;" and if not, how near would you set them to each other? Further, is the Sugar-maple the same as the Hard maple, or are they distinct varieties. One man told me he thought there was a borer that destroyed the sugar maple as the locust is destroyed.—E. H. G., *Des Moines*

REMARKS.—The sugar maple is known under the name of both "Hard and Rock maple." The borer that works upon the soft maple, so far as we know, has not attacked the hard maples, nor is it probable that it will ever do so, on account of the extreme firmness of their bark and woody tissues We would recommend the same rules in planting the maple, whether for a "sugar bush," or for timber, as given for the Chestnut in the January number.

The Sugar maple of the Eastern States seems less at home with us at the West, than its near relative the Black maple, (*acer nigrum*) As a rule the (*acer saccharinum*) is not found plentifully in our western forests, while the black maple is quite generally found in all timber districts. Fortunately, *our* hard maple is in all respects the best tree. Its wood has a better and handsomer grain; it is fully as valuable for sugar making; as an avenue or shade tree it is more regular and symetrical, with a larger and deeper green leaf, and above all, it grows more thrifty and erect, while young than the Eastern sugar maple. The seeds of the black maple ripen last of September. They should be mixed with pure sand before becoming dried, and kept in a box in a moderately dry cellar, for spring planting.

For the Western Pomologist.

The Haas and Ben Davis.

We have a Farmers' Club here of which I am a member. I wish two others were called upon to make out a list of hardy apples for general cultivation We recommended the Haas and Ben Davis. There was considerable discussion upon the new varieties which closed with a recommendation of them for trial.

I have been raising and experimenting with fruit in Wisconsin for twenty years, and am satisfied, as your able President, (Mr. Mathews) of the Iowa State Horticultural Society says, that we should double work, or top graft many varieties of the apple I have root grafted and top grafted, and my experience coincides with that of Mr. Mathews. I have a seedling of a Siberian variety that I am root grafting for stocks upon which to top work other varieties. I am highly pleased with the *Pomologist*. It is just what we Westerners want.

B. P. MASON, *Ripon, Wisconsin.*

Forest Trees.

ED POMOLOGIST.—The February number of the *Pomologist* is full of good things for those who are trying to raise fruit and forest trees. I wish to plant five acres of forest trees in the spring of 1871. Can I find any thing better than the American Chestnut for this part of the State. This county (Wayne) is largely prairie, and somewhat elevated—main level some six hundred feet above low water mark of the Mississippi at Burliegton.

G. G. ALLEN, *Corrydon, Iowa.*

REMARKS.—You can find no more valuable tree than the Chestnut. But in making a plantation of five acres, our selection would not only include the Chestnut, but others—the White ash, Black and White walnuts, Rock and White maples and some of the elms, and some of the soft timbered trees—Cottonwood, &c., &c.

"Number 13."

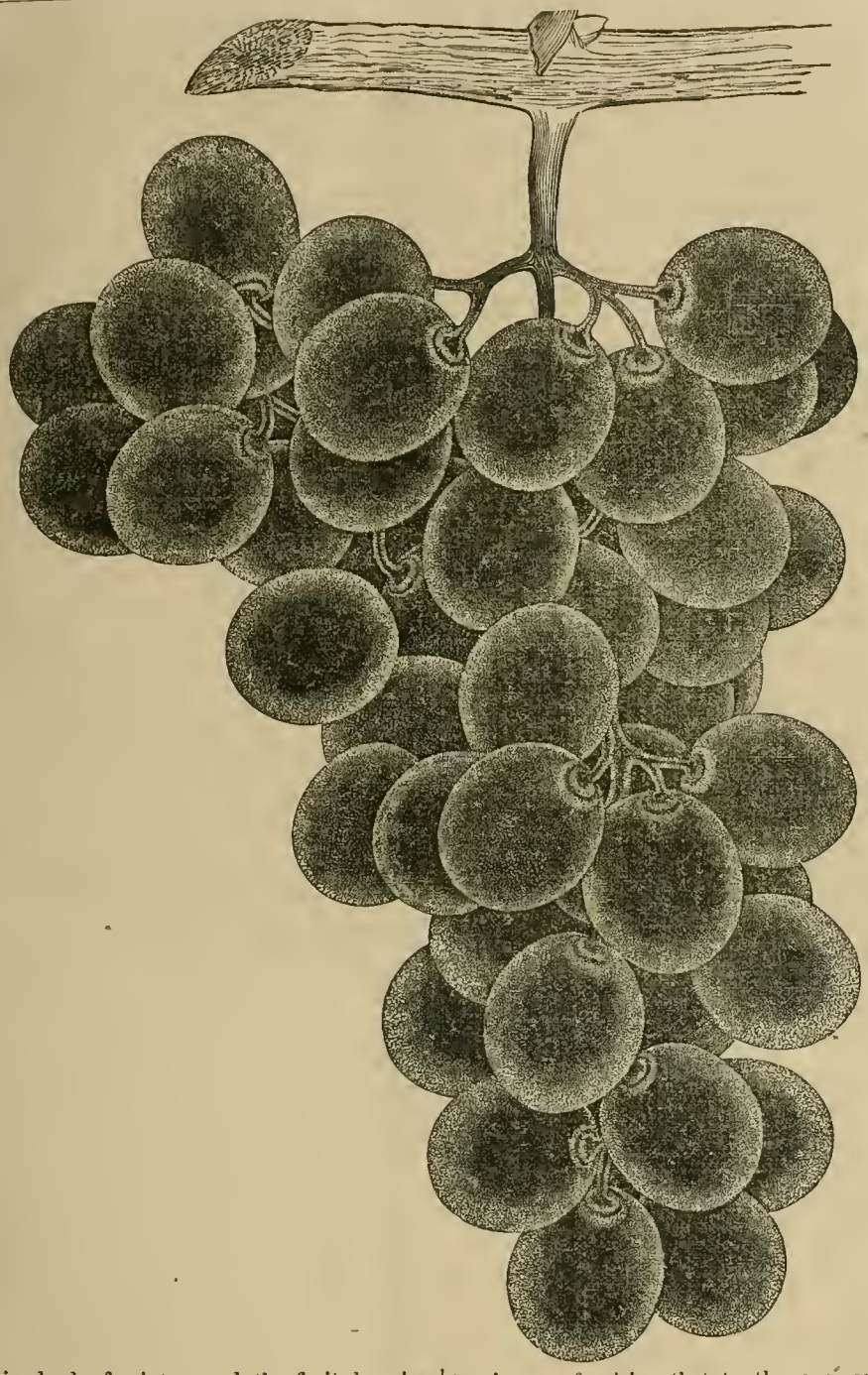
For the last nine or ten years, Prof. James Mathews, President of the Iowa State Horticultural Society, has had under cultivation a grape under the above title, and of which the accompanying engraving is a truthful illustration copied from a cluster as it laid upon our table. As the grape is one giving no ordinary promise, and its origin somewhat involved in mystery, we propose to speak of its history, so far as known, and of its characteristics.

Mr. Mathews obtained the vine from Mr. E. S. Rogers, of Salem, Mass., in the spring of 1862, as "Rogers' Hybrid, No. 13," but which has proved not to be that variety. In some way, Mr. Rogers, who is generally very correct, made a mistake in regard to this grape, as it is *not* his No. 13. What one among Mr. Rogers' numerous seedlings it may be, has not yet been satisfactorily determined, nor is that very material for our purpose if the fruit is all right. From all that can be learned concerning this grape (and Mr. Mathews has been unsparing in his efforts in this direction,) we are led to believe it a chance seedling sent out by Mr. Rogers undetected, as his No. 13. Until, however, this question shall have been fully settled, if ever, Mr. Mathews has thought best to adhere to the original name—"No. 13."

The vine received in 1862 (a two year old) produced a few fine clusters of fruit the next season (1863), and has borne a regular and abundant crop every season. Mr. M. has now some thirty to forty vines of the same variety in bearing and is still extending the number.

It has been our good fortune to have an opportunity of eating the "No. 13" in its season, for three years past, and being so favorably impressed with its excellence, we took occasion last fall to visit Mr. Mathews' grounds with the express purpose of examining the habit, character and hardiness of the vine, as well as its fruitfulness. And after a careful scrutiny, and taking into consideration all qualities, together with the extreme unfavorableness of the season, we were forced to the conclusion that "No. 13" stands out prominent among the most desirable varieties with which we are acquainted. That exquisite foreign, or Muscat flavor it posesses, must, in our opinion, recommend it to all good judges of the grape.

If any vine is entitled to the appellation of "iron clad" it is "No. 13." At the time of our visit, these vines were surrounded by a large collection of other varieties, the most of which were so mildewed and scabbed, as to render the crop totally worthless. Hartford had dropped *all* its fruit before maturity—the ground being literally covered with the fallen berries. And even the Concord, so renowned for its exemption from disease, was much injured by mildew and scab; while the Delaware, standing at a distance of ten feet, was a *total* failure—the vines leafless as



in dead of winter, and the fruit hanging withered and sour. Amid all this desolation "No. 13" stood up unscathed; we were unable to discover any defect, except in the time of ripening, which was at least two weeks later than in ordinary seasons. In bulk and weight of fruit to the vine, of similar size and age, it compared as about three to two over Concord.

The color of the berry in the shade, when ripe, is a whitish green, and where exposed, a dark, rich amber; skin exceedingly thin, and parts freely and clearly from the pulp. During the three years of our acquaintance with this grape, we have made some experiments with it. In comparison with Concord, Delaware, Crevelling, and several of Rogers' Hybrids, it has proved much the best keeper. We have also succeeded in making from it specimens of raisins that, to the eye, can scarcely be distinguished from an ordinary article of commerce. It seems to possess in a remarkable degree, the principle of self-preservation.

The question naturally arises, why has not Mr. Mathews propagated this grape largely, and disseminated the plants generally throughout the State? And, we think, we have more than once suggested our views to him on this subject. He has, however, persisted in his refusal to press it upon public attention, until thoroughly and satisfactorily tested by himself, and until it shall have been recommended by other horticulturists in the State. Consequently he has only parted with plants to a few friends, on his own private recommendation, until last fall, since which he has sold a few hundred vines to persons, most of whom have seen and tasted for themselves.

As we intend, through the columns of the POMOLOGIST, to recommend from time to time such fruits, and none others, than those we believe to be among the best from a thorough acquaintance, we feel no hesitation after three years trial of "No. 13," in recommending it for public favor, firmly believing that if it succeeds as well in other portions of the West, as in the Central portions of Iowa, where it has been so fully tried, and where we have watched it with so much interest, it will prove the greatest acquisition in the grape line yet introduced west of the Mississippi—a conclusion we have by no means been hasty in arriving at.

LILIUM BULBS.—It may be that some o our readers have not obtained and planted bulbs of the choice lilies during the past fall, and yet they may feel a desire to have them in flower the coming summer. To such we say, obtain the bulbs as soon as you can, and pot them in a soil composed of two-thirds sharp sand. Place them in a warm, dry cellar until March, and then bring them up into a cold frame or the window of a common living room; water just enough to keep them moist, not at any time wet or dry, and as soon as they begin to grow, give them a position in a spent hot-bed frame, plunging the pot. When the weather gets warm out of doors, the bulbs may be turned carefully out of the pots into the open ground, being careful not to loosen the soil among the roots. The blooms will be much better than will those which are not planted until the frost leaves the ground in the spring.—*Rural New Yorker.*

CHEAP HOT-BED COVERS.—One of the best materials for covering frames besides glass, is common white muslin, coated with the following composition:—Take one quart of linseed oil, one ounce of sugar of lead, and three ounces of resin. Pulverize the sugar of lead in a little oil, then add it to the other materials. Put all into an iron kettle, and heat it until the resin is dissolved, and the other ingredients are thoroughly mixed; stretch the muslin upon the frames, and apply while hot. Frames prepared in this manner will last several years, if kept under covered when not in use.

—The Orleans American states that there have been sold from the county of Orleans, N. Y., this season 218,911 barrels of apples. This is in addition to those made into cider or reserved for home consumption. The price averaged between $1 75 and $2 80 per barrel, delivered at the ware-houses; consequently there was nearly six hundred thousand dollars received by the farmers of Orleans county, for apples the present season.

—Niagara county has shipped 210,402 barrels of apples, mostly to the eastern markets, during the season. The average price was $2 90 per barrel, the amount realized being $610,65.

White water-lilies are like beautiful thoughts, rocked on the swells of a pure bosom.

For the Western Pomologist.

The Grimes' Golden—Its History—Original Tree Still Standing—Its Great Age.

Mark Miller—*Dear Sir:*—I am informed that you seem to think that there is too much noise made about the "Grimes' Golden" apple by certain parties, and that you judge so from the fact that you attended the recent meeting of the Illinois State Horticultural Society, at Ottawa, and did not hear it mentioned while revising the Society's fruit list, although the most intelligent and best posted pomologists in the West were in attendance.

Now, I can only account for it not being called up, from the fact that it is yet not generally known and tested in Illinois, and the States west of Ohio. I have not been able to learn of the trees being in full bearing west of Ohio, except in Southeastern Iowa, and Northeastern Missouri, where there are some trees as much as twenty-four years old from the graft. I believe if that intelligent body of fruit growers at Ottawa, had been acquainted with the "Grimes' Golden," as in Southeastern Iowa and Northeastern Missouri, and had proved it to be as good in Illinois, they would not have hesitated to place it first on the list of winter apples. Something of the history of this most excellent and valuable apple in this section may not be uninteresting to your readers.

So far as I have been able to learn, Johnson Meek, Esq., of Vincennes, Lee county, Iowa, was the first nurseryman west of Ohio who propagated the 'Grimes' Golden.' Mr. Meek first saw the 'Grimes' Golden' at the nursery and orchard of Samuel Wood, near Smithfield, eleven miles from Steubenville, Ohio, in the autumn of 1845. Mr. Wood had trees of this variety in bearing at that time, which he had obtained by grafting cions from the original tree, which is still standing, healthy and productive, about three miles back of Wellsburg, in Brooke county, West Virginia. It is owned by Thos. P. Grimes, who says his father bought the farm on which it stands about 70 years ago, and sold fruit from it to New Orleans traders as early as 1804. He writes to S. B. Marshall, of Ohio, that he never knew the tree to fail of producing a good crop, except in 1834, when the crop was partly cut off by severe, late, spring frosts. It is his belief that the tree has not missed bearing fruit for 75 years or more. Mr. Johnson Meek got cions of 'Grimes' Golden' of Samuel Wood in the spring of 1846, and grafted them that spring in his nursery in Lee county, Iowa. In the fall of 1846, he cut cions from the original tree in Brooke Co., Virginia, the tree at that time not being as large, says Mr. Meek, as his own largest trees of 'Grimes' Golden' are now. Mr. Meek says the original tree stands on a poor slate hill. In the severe winter of '56 and '57, when Mr. Meek, as well as other Western nurserymen and fruit growers, learned a valuable lesson by their heavy losses of tender varieties, he found that 'Grimes' Golden' was unhurt; and finding the tree to be a young and constant bearer of the very best fruit, either for eating, cooking or market, he planted largely of it himself and urged his customers to plant the most of their winter apples of this variety.

From Mr. Meek's nursery it was spread into Southeastern Iowa and Northeastern Missouri, and perhaps into the adjoining parts of Illinois. Many of those trees are now in bearing, all giving the highest satisfaction. *It is the most popular winter apple, where known, that we have in this section.* Mr. Meek regards it as *the best winter* apple for this section.

You need not fear it, Mr. Miller, because the Illinois State Horticultural Society did not notice it. It has received high praise from such talent as Dr. John A. Warder author of American Pomology, who says of it: "Quality very best; use, dessert, too good for aught else." Again he says: "This delicious winter keeping apple should be extensively disseminated by nurserymen." Also from S. B. Marshall, Charles Downing, Henry Ward Beecher, Horace Greeley, Geo. M. Beeler, Jared P. Kirtland, M. B. Bateham, F. R. Elliot, and others.

Dr. Hollingsworth, of Lee county, Iowa, and the writer, had the fruit on exhibition at the last Iowa State Fair, where it attracted much attention and praise. I have had the trees in bearing a few years, and consider it our best and most valuable winter apple for this section.

B. P. Hanan.

Luray, Clark Co., Mo.

Remarks.—We thank Mr. Hanan for his interesting communication on "Grimes' Golden." We were not present at the last Iowa State Fair; hence had not the opportunity of seeing the apple at that time. As our acquaintance with, and opinion of "Grimes' Golden" are pretty emphatically expressed in the February number of the Pomologist, further remarks at this time would be superfluous. We are always open to conviction and ready to recognize anything worthy of commendation, but death to humbugs wherever found.

Top Grafting.

Top grafting apple trees may be done almost any time during their dormant state, but the work is usually done in early spring. We prefer cleft grafting—that is, splitting the stock and inserting the graft, exactly like we recommended for grafting the grape, except do not remove the bark. You may insert one or two grafts if the stocks are large, say two inches in diameter or more; cover all the exposed parts with grafting wax, that is the top and split, to exclude the air. Use well developed terminal buds if you have them, if not, the best matured buds you have. Three buds in length are sufficient. If not terminal buds wax over the top end. In re-grafting bearing trees, take them off above the forks in the center of the tree and graft these forks or limbs, leaving the outside for another year, as it destroys the vigor and vitality of the tree if you cut off too much of the top at one time. In younger trees, from five to eight years old, you can take off all the top, providing it is high up on the numerous forks or limbs. In trees from three to four years old we prefer grafting them at the hight we wish to form the head. In younger trees we always graft below the ground and use no wax, but pack the ground close and tight around the graft. In this manner we graft the pear, cherry, plum, and even the peach. The pear, cherry, and the plum can be top grafted like the apple. We seldom bud anything except the peach, apricot and rose. Grafting may be continued until the bark peels freely, then we prefer cutting off the stock and make a slit as for budding. Slope the graft only on one side to a point, and slip it in from the top between the bark and wood; tie a string around to hold it in its place and wax over. After the grafts have grown freely cut the thread to let them expand. In all kinds of grafting you will have to watch and keep the suckers off. The pear and apple grafts when growing too rapidly are subject to apoplexy (blight); as soon as you see the least symptom of this disease pinch the grafts back, so the balance of the buds will mature and throw out laterals.

Be careful you do not take the fungoid fever; if you should you will have much difficulty in getting rid of it, for you will certainly get the cart before the horse, and should your horse die you will look for the disease in the cart.

Grafting Wax.—How to make good grafting wax you will find in the Pomologist No. 1, page 15, which we have used and find excellent, particularly when the weather is rather cold. Grease your fingers slightly with tallow, then put it on the grafts. A cheaper wax we also use when the weather is not so cold, made in the following manner: Take one pound beef tallow, (or better, one pint linseed oil, either raw or boiled); one pound beeswax; melt together and then pour it into water and work it in your hands until it gets light and tough; make into sticks and use as above.

Kan. As't Ed.

Clapp's Favorite Pear.—The Massachusetts Horticultural Society has awarded a premium of sixty dollars to Clapp's Favorite, as the best seedling pear, after a trial of five years.

Crab Apples from Abroad.—The London Gardeners' Chronicle speaks of a new accidentally crossed seedling of the Red Siberian Crab, raised by Mr. Jennings, which rivals the Lady apple in beauty, and is of good quality.

Laying Out the Flower-Garden.

BY M. O'KEEFE.

"Your voiceless lips, O flowers, are living preachers—
Each cup a pulpit, and each leaf a book,
Supplying to my fancy numerous teachings from lowliest nook."

The following remarks on laying out a flower-garden, are by M. O'Keefe, Seedsman and Florist, Rochester, N. Y. The hints given are worth to any one having a taste for the culture of flowers, a year's subscription to the POMOLOGIST, ten times over. With the instruction comprehended in this article, even the novice in floriculture need not fail of having a well arranged, tasty display of flowers about his home. We have never seen a more comprehensive or instructive article on the subject:

A flower-garden should resemble a rich picture, with all the colors nicely contrasted and blended together. We find that the most beautiful flower-gardens are those in which there is a continual display of beautiful colors and sweet odors, and the plants all having a neat and agreeable habit of growth. As to the situation, we should prefer a level plot situated near the dwelling-house, and well exposed to the sun and air, with a southern aspect. The soil should be of a deep, rich loam. Work in the flower-garden should be commenced during the months of August and September, that it may be completed by the middle of October, to receive bulbous and many of the herbaceous and other plants, and such shrubs as are hardy enough to set in autumn. If the work is deferred until spring, it should be accomplished as early as possible, and then the proprietor will not be deprived of the pleasure of having any thing in its greatest perfection, except annuals and tender bulbous or tuberose plants for that season. The work should be done neatly, as a great deal depends upon the manner of laying out, the proper consistency and richness of the soil, the make of the walks and laying the edgings, whether of box, grass, or anything else. It will be difficult for us to propose any particular plan for laying out the flower-garden that would be likely to give satisfaction to all, for most every one has a fancy of their own, and though they might ask advice, would probably, after all, follow the guidance of their own taste. We think the modern style of grouping and massing the colors in separate figures, is much neater than the old method of mixing and intermingling the species and varieties in all the beds. In grouping or massing it is necessary to get colors which when brought into contrast with each other, will be pleasing to the eye, and make a more immediate impression than a mixture of colors not distinct enough anywhere to give a decided effect to the whole. Another advantage of massing plants is, that they cover all bare surface of soil or parts of figures not covered with foliage and flowers, as the parched appearance of the surface, when seen, lessens the freshness of the flowers, as well as their beauty. They should be placed in regular beds or figures, neatly cut out in the lawn, and always in circles or ovals, and when well kept, the green turf will add much to the brilliant colors of the flowers, as well as to form a fine contrast to the beds themselves. For massing or grouping, we should select the most delicate and beautiful shades of pink and white, light blues and straw-colored yellow, with crimson and vermilion. For a large oval bed, the following collection and arrangement will give a brilliant display of colors from July to November: In the first row, Mignonette, to be sown all around the border, eighteen inches from the edging. After the seed is through the ground, plant all the various colors of Portulaca, alternately, one foot apart in the same row. The second row, three feet from the edging, plant all the fine mixed colors of Phlox Drummondii, eight inches from each other The third row, four feet from the edging, sow with white Candytuft, planting all the fine varieties of China Pink, three inches apart in the same row. The fourth row, five feet from the edging, plant with Purple Globe Amaranth, eight inches apart, with a German Ten Weeks' Stock between the Amaranths. The fifth row, six feet from the edging, plant alternately, all the various colors of fine double German Asters, six inches apart in the row. The space remaining in the center, fill with all the different colors of the Petunia, planting one foot apart, among the Petunias, bulbs of all the fine colors of the Hybrid Gladiolus, which, when in bloom, with their long, densely-flowered racemes of blossoms varying from white to salmon and carmine, scarlet and crimson, standing up among the creeping Petunias, will make a fine display. The walks of a flower-garden should be wide enough to admit two persons, walking comfortably side by side. Four to five feet will not be too wide for the main avenue, and the narrow walks should be gradnated by the size of the garden. The best walks are composed of small stones or coarse gravel, covered with five or six inches of fine gravel; made in this way they will be found to make dry walking at all seasons of the year. A walk of four feet width should be 1½ inches higher in the middle than at the sides, and for every foot of increase in width, one quarter of an inch to the elevation of the center. In regard to edgings, Box will be found to be neater and more beautiful than any other plants. Grass makes a very neat edging if kept in order, but it requires so much attention to keep it in its place, that we would not recommend it. Thrift, if neatly planted, will make handsome edgings to borders or flower-beds. Box edgings should be trimmed in June, and should never be permitted to grow tall. It should be protected in winter by coarse litter. No flower-garden can be complete without some grass. First see that the ground is well prepared by deep trenching or digging, pulverizing the soil, that the roots of the grass may penetrate two feet deep, level it and leave it to settle for about ten days, then rake off smooth, and it will be ready for the seed. To have a fine lawn, it is necessary to mow it often, and roll it, especially after a rain, as by doing so, a close texture and fine velvety turf may be obtained.

Adam's Needle, or Yucca. (*Yucca filmentoso.*)

This plant is an object of beauty the whole year, if only the leaves are seen; these are one to two feet long, bristling out at all angles, with sharp points, slender white threads hang from edges.—Flower-stalk stout, three to six feet, with fifty to two hundred white blossoms under branching arms. Truly magnificent in June and July. Culture simple—a deep mellow soil is required; perfectly hardy; lives to a great age.

Hanging Baskets.

What is prettier, especially in winter, than a fresh, green hanging basket? *Hearth and Home* gives the following directions for both making and arranging these simple and tasteful ornamentals:

Hanging baskets are within the reach of all, and the more simple their structure the more graceful their effect. We have seen one made of cocoanut shell, with the upper section neatly sawed off and scarlet cords attached, planted with moneyworth. Its trailing stems, extending half way down the window, filled with its bright golden blossoms, might have graced a Fifth Avenue drawing-room, so exquisite were its proportions, so bright in coloring. For larger baskets, buy at the woodenware shops a wooden bowl twelve to sixteen inches in diameter. Bore three holes at regular distances for the cords to support it. Then ornament with rosettes, made of halves of the coffee-bean not roasted, grains of rice and small black soup beans. Any girl of common ingenuity can make a pretty one with these materials. Attach them to the bowl with common glue dissolved in water or whisky—if dissolved in the latter it does not set or harden until used.

When it has dried, varnish with black varnish, which is readily procured at little expense at any paint shop or carriage manufactory.

When that is dry, ornament the edges with allspice berries strung on wire. Now attach the cords, and you have as handsome a basket as the shops can furnish, and the expense is very small. A wooden bowl can be ornamented with the scales of the long pine cones. Each scale can be nailed on with upholster's tacks, first boring the holes, and after the bowl is covered varnish with brown varnish. Even the varnish can be made at home, if one chooses. Buy two or three ounces of asphaltum and dissolve it in turpentine or kerosene, making it lighter or darker as one desires by adding more or less of the asphaltum.

For the Western Pomologist.

New Seedling Apples.

FRIEND MILLER.—I believe it is generally acknowledged that the apple is the most valuable fruit we have, and I suppose it is the best fruit that man has ever been blessed with on the face of the whole earth; and I know of no one fruit in so general use. I once spent a month at Panama, on the Isthmus, where there are an abundance, and great variety of tropical fruits, and I suppose nearly one-half of the food of the native people of that country is fruit of some kind. The Plantain and Banana are used as common as our potatoes are, and are cooked similar, baked and fried, though I do not recollect eating any boiled. Oranges at 75 cents a bushel; pine apples, large and fine, 5 to 10 cents each. And yet, none of these fruits were equal to the apple and pear. If we could raise pears as cheap as apples, I would prefer them. I am going to try Captain Mathews plan of raising pears by intermixing evergreens with them. In fact, I had commenced a new pear orchard in this way two years ago, by setting evergreens on the north and west; and now they must be on the south and through among the pear trees.

It is generally known that I propagated the Warfield apple, a new seedling of this place, and I have spread it over the country pretty widely, from Maine to Nebraska; and I am not ashamed that I have done so. I have about 50 of the trees in my orchards, the oldest of which are buded on seedling stocks, eight years growth; one tree bore at two years and it has borne every year since; half the others bore at three years and nearly all at four. They are remarkable young bearers and the tree is the most perfect apple tree I ever saw. The branches form a knot that will never be likely to split off. Its growth is exceedingly rapid, yet it appears as hardy as anything I have. Such a fall as last, it is apt to burst the bark at the ground while young in the nursery. The fruit is large, round and fair, and exceedingly handsome; very light delicate yellow, with light beautiful blush in the sun; flesh a little coarse, firm and hard, subacid; quality, second rate, good cooking in July and August; keeps through September, though it often rots a little on the tree, particularly last season, though it was large and fair. If I am palming off a *humbug*, friend Miller can testify that it differs from the Mexican Strawberry, in that I have never paid much for advertising, nor have I ever made to exceed $15.00 in any one season on it, except the two last on the fruit.

The Iowa; a seedling from Washington county, which I obtained from Mr. Ramsey 10 or 12 years ago, a large, striped apple, of first quality; season, September and October. Tree first rate. So far, it has not borne much with me. Some one in Washington county please tell us how the original tree succeeds and bears; for we have not, in former years, *attached importance enough to the qualities of the tree.*

I have on hand three or four sweet varieties, not yet fruited, long keepers, to take the place of the Sweet Romanite, which is quite too small; we want a good sweet apple for baking in the spring of the year. A dish of rich, baked sweet apples and milk is a very good and healthful food for children, and far from being dispised by any person. I have a number of other seedlings not yet fruited, but highly recommended by those of whom I obtained them.

By a fortuitous combination of circumstances, I have, lately obtained from Peter M. Gideon, of Excelsior, Minnesota, which is 25 or 30 miles W. N.-W. of Minneapolis, the cions of two seedling apples, "the Wealthy" and "the Molly," which have made their way to public favor, to some extent, in Minnesota and Wisconsin. I will ask Mr. Gideon to give you a description of the trees and fruit for publication.

But, friend Miller, here is one important fact we must not overlook in introducing new seedlings. It does not follow that because a seedling has originated in our own vicinity, that it is adapted to our climate! or that if it originated in Minnesota, it is unquestionably hardy! although when an apple tree has withstood a few winters there it is a very good test, for Mr. Gideon writes me 2d of March, "The winter has been rather mild generally, coldest, 31° below zero." And when Mr. Adams, in the north of Iowa, says "nine-tenths of the seedling apples winter-kill with me," we must know that it is only a few of the hardiest that survive; but here we get this severe test only once in ten to twenty years. We want varieties that will stand these tests. And yet, I would not condemn all that will not stand such tests. A few of us early settlers of Iowa saw the exceeding killing winter of 1842 and 1843, which was in length and severity like a Minnesota winter. And yet, Mr. Starit, of Cedar county, told me that his mother brought some apple trees with them and set a small orchard previous to that winter, and a Rambo stood through, and twenty years after it was the best tree on the place. How little we know of the causes that would save a Rambo through such a winter!

Allow me to criticise some of the remarks in the February number of the POMOLOGIST, on the "Kansas Queen," "a seedling raised by B. Atkinson, of this place, from seed of Ben Davis, planted 1858." "The tree is so identical in all its habits with the Ben Davis, which is a sufficient guarantee of its being hardy, productive and profitable without further comment from me."

In the first place, I deny the evidence that it was a "seedling of the Ben Davis." In the second place, that if it was proved to be a seedling of the Ben Davis, or any other hardy variety, it is sufficient evidence of its hardiness and productiveness; and third and lastly, if it was just like its adopted parent, the Ben Davis, except its season, which you say, or rather your correspondent, is August and September," therefore I would not give two cents for ten thousand of the trees, unless I was in the line of *humbugs*, to sell the trees, for we have plenty of better apples for August and September than the Ben Davis, which is only tolerated for its long keeping. The tree of the Dutchess of Oldenburg is equal, or better than the Ben Davis in every respect, and the fruit larger, handsomer, better quality and a far more profitable market apple for August.

Let us be cautious about getting the *true Dutchess of Oldenburg*, for I learned last winter, in the Northern Illinois Horticultural Society, at Dixon, that many have got a spurious variety, by mistake, for the genuine Oldenburg, (let us shorten this name,) it is a very valuable variety, probably superior to the Warfield, and the two together will make the handsomest basket of fruit that any boy or woman ever peddled in the streets, or carried into a railroad car.

Please pardon me if I have disparaged the introduction of the Kansas Queen, or any other seedling; I only intended to criticise the principle *that a seedling can be depended on because of its parentage or place of origin.*

Hence the nineteen varieties from Russia, which Mr. Skinner, of Illinois, is so widely and generously spreading over the Northwest, must be taken with a great deal of caution *and tried.*

SUEL FOSTER, *Muscatine.*

Flavor of California Fruits.

JOSIAH HOOPES, in his late annual address before the Penn. Fruit Growers' Society, said of his observations in California:—"I may say in regard to the larger fruits, such as the apple, pear, peach, etc., that their remarkable size and beauty appeared very little short of a miracle; indeed, I was totally unable to detect old standard varieties, time and again. Their enormous size and perfect shape, together with that peculiar waxen appearance, proverbial to all California fruits was a continual picture, and will not soon be forgotten. But beautiful and large as all these vegetable productions are, there is lacking that delicious flavor, the agreeable aroma, and the richness of our less perfect, but better fruits. We search in vain for these requisites beyond the Rocky Mountains, and I very much doubt if *they* have the more preferable acquisitions, or that we would exchange our *quality* for their appearance."

Cracking of the Pear.

It may be a long time before we know all the influences affecting this disease. The past season, which has been so wet in Western New York, and, as commonly supposed, favorable to the increase of the fungus which causes cracking, has given some remarkable results. The Seckels have been badly affected, and on some trees nearly all the specimens are small, black and scabby. The Flemish Beauty, which has so often been spoiled of late years by cracking, was large uninjured and covered with that rich russet which accompanies a high flavor. The White Doyenne appears to be hopelessly diseased, as no indications are seen of any improvement of late years, and few fair specimens only, to be found on the best trees. The Gray Doyenne, on the contrary, is mostly fine and fair.—*Country Gentleman.*

For the Western Pomologist.

Fruit Trees in Hedge Row.

On the first page of your number and volume, the first caption with regard to trees should be amended if we may judge from the experience of the most successful cultivators of fruit trees that are remarkable for their longevity on this Peninsula, and especially the peach. The caption referred to is—☞ "Plant young *trees.*" Now I propose briefly to recommend all to do what I would do, if I were again compelled to commence the world by a displacement resulting from the war, or any other cause—and find my farm destitute, not only of trees, but a dwelling, fences, ditches and banks; moreover encumbered with debt. Plant the *seed* of the best varieties of fruit trees where they may grow, and alternate with dwarfs from the *Northwestern* nurseries.

The produce sold from this farm during the past fifty years, under the care of the *best* practical farmers—drilled to the plow from infancy—never exceeded $2,000, and *rarely* half that sum. Half was given as rent, or a cash rent of $450, minus taxes, $50, lime $50, and repairs $25—netting say, $325 annually. The last triad of the last septenniad, my first practical experience in farming, has resulted in an income from this same farm of 246 acres (and one-third of that swamp, etc.), say on an average $5,000 annually. This I regard as a failure when compared with what I clearly see that I could have done had I received the advice at the head of this article seven years ago, when I commenced farming. I have trees now in full bearing during all of the past four years that which sells readily for five dollars per basket of about half a bushel.

☞ *Because they are Western trees* that I obtained from the old Rochester nurseries, and ripen their fruit, say two weeks earlier here than those raised in nurseries in this vicinity. Moreover, I budded a quince tree that grew up from the root of one of them that was sent to me from Rochester in 1862, say one foot from the ground, and last summer sold from this graft a lot of pears at $3 per basket, or $6 per bushel; and although they were the third crop from this bud on the quince stock *a foot above the root*, it was necessary to tie up and support the branches of this tree, now ten feet high, or nearly the height of the dwarf pear that I received from Rochester in '62. This original dwarf tree may possibly be virtually a standard by a natural "lipping process"—certainly not by any artificial process of the kind, (which, by the way, I may describe hereafter). It bore about two baskets of choice pears last year, and part sold for $5. per bushel, and has borne six crops I think; never missing a year, and always very large fruit. *Query*—is it true, as recently stated [by a distinguished Pomologist, I suppose], in a paper of standard authority in the West,

☞ "That *all* successful dwarfs have really become standards?" Again being conscious that I am comparatively a novice in such matters, I ask the question whether success will *probably* attend the following experiment:

Three years since I obtained five hundred *imported* anger quince stocks. These were budded from the most successful tree I received from Rochester, as its early fruiting, large size and the exquisite beauty of the fruit, its juicy and luscious flavor was so in contrast with those from other nurseries, that were small and mealy, I imagined that I had possibly a new variety. These trees are now about four feet high *only*, with the best manure and cultivation. I propose to set them out in trenches, five feet apart, and inclined at an angle of forty-five degrees due west; "lip" each tree above the quince, and mound up the surface soil alternately with good compost and silicates or potash compost, until the mound thus produced by throwing the furrows to the trees, etc., covers the lippings, leaving however the quince roots above the subsoil, and not elevating the mound unduly in any case by means of the inclination of the trees referred to. What I wish is not the experience of some *one* tree which *may* be an exception like the above; but the *reason* why trees thus planted as a sort of hedge at intervals of ten feet *may* not pay better than by the usual mode of planting. Of course it will involve faithful and close pruning, not only of the branches, but the roots; and this latter is accomplished with *greater facility than by any other arrangement*, by what is called bar ploughing—filling the furrows with the compost referred to, and mounding up again with the plough, thus insuring the plant food *peculiar to the tree*, precisely where it wants it. This idea was derived from a crop of potatoes that I planted in my orchard between the rows of trees, and manured with compost which was robbed from the potatoes by small fibrous roots thrown up from the trees, and filling the hills of potatoes, resembling cocoa matting; consequently I did not dig the seed I planted in quantity—much less in size. The information I now beg of some of your correspondents is, whether this *inclination* of young trees at five feet will injure their full development, remembering that we are dealing with a *highly cultivated* variety, and not one of the Pomaceæ which we call "hedge thorn," or "hawthorn," that is usually "*laid*," and lives and bears fruit for half a century. A highly bred English cow will degenerate rapidly, and give less milk, and that of a poorer quality, if put in my barn yard with a common half starved "Sussex cow," while the latter fattens and doubles her milk. This is the secret of success in fruit growing.

DAVID STEWART M. D.

Port Penn, Delaware, Jan. 1870.

—A red cedar hitching post, set in Plymouth, Connecticut, in 1770, is still serviceable, and apparently will be good for twenty years more.

THE WHITE SPRUCE.—M. L. Dunlap thinks that the white spruce will ere long supercede the Norway spruce as an ornamental tree, and thinks this variety of the spruce should receive more attention by nurserymen.

THE GRAPE WITHOUT SUNLIGHT.—At the last annual meeting of the New York State Grape Growers Association, a member related an experiment made to prove that sunlight on the grape cluster was not essential to perfect maturity.—When the berries were about the size of buckshot some clusters were enclosed so as to be in complete darkness, and they ripened and colored equally well with others on the vine fully exposed to the sunshine.

F. R. Elliott had seen at Detroit, trellises eight feet high, loaded with Hartford Prolifics.—Thought the grapes could not possibly ripen, but was informed that the owner had buried about the vines the carcasses of a great many beeves, and that the grapes did ripen. The phosphates are the right thing. I think the Byington system has substantially the same effect on the health of the vine as ordinary summer pruning.

GROW THE CAULIFLOWER.—It is surprising how few ever think of growing this delicious vegetable. It is true the plants should be started in a hot bed in this latitude to insure success. But for all this, there is no reason why every family should not enjoy the luxury afforded by this plant. A Lady correspondent of the *Rural New Yorker* gives her method for growing the Cauli flower without the use of a hot bed, and which is so simple that every family in the land may produce it. The writer says:

"I start my plants in the early part of March. In lieu of a hot-bed, I use pans filled with rich, moist loam, placed in any warm situation in the kitchen; and to keep moist, I cover with a paper or board, or even a cloth, until the seeds have germinated, then put them in the lightest part of the room, and keep moist with soap-suds. When the plants have put out the second pair of leaves, I transplant into half-pint pots, made of coarse, strong paper, (flour sack is very good;) cut the pieces half square, lap the corners together, and fasten with a few stitches or a pin. I set these in a pan, fill the spaces between with earth, keep well watered with soap-suds; and as soon as the weather is warm enough I have nice, large plants for the garden. I make the soil rich, deep and mellow, tear the paper off and set in the plant; keep the earth drawn well around the stems, and water in dry weather. In August they will be ready for cooking."

GAS LIME ON ORCHARDS.—"Runnymeade" writes us that in the spring of 1869, Charles Bartles, Flemington, N. J., applied to a young and thrifty orchard—each row of trees consisting of but one variety—about fifty bushels of gas lime per acre to one-half, and twenty-five bushels to the other half. The lime was applied across the rows, and last October the increased quantity and quality of the fruit was very evident, and the stronger and healthier growth of the trees well marked, in each variety, where the larger quantity of lime was used. Our correspondent concludes that fifty bushels of gas lime per acre is not "too much," since it did not result in death to the trees, as Mr Sylvester recently said too much would. Soil, red shale.—*Rural New Yorker.*

Treatment of the American Grape Vine.

There is an interesting article bearing the above title in the Journal of Horticulture for for November. The writer Mr. F. Underhill, of Brocton, New York. says:

"The question of the proper method of planting, training and pruning the native grapevine of America, is one of especial interest and importance to a large class of our people who have invested their means in vine-yards. In the text-books of grape-culture, in the Horticultural Journals and in the remarks of grape-growers at their meetings for discussion the subject is discussed, and the most diverse opinions and views are expressed; and unable to arrive at a definite conclusion as to the merit of the different theories propounded, the practical grape-grower is compelled to grope blindly in the dark until a tedius and often costly experience shall suggest to him the proper course to pursue in the management of his vineyard.

"Before stating the results of personal observation on this subject, let me briefly recur to the early history of vineyard-culture in America. Our first experiments were with the foreign vine, and these signally failed; and it was only when the Isabella and Catawba were discovered and disseminated, that our people believed we had native grapes of sufficient merit to justify their cultivation in vineyards. In many localities there was a desire to try the experiment; but the people had only idnefinite and crude ideas of the manner in which vineyards should be laid out and managed. Hence information was sought of those who had been in the vine districts of Europe, and especially the Germans and French who had taken up their residence in America, and who could state, with more or less intelligence particularly the methods pursued in cultivating the vine in Europe.

"Close planting is a marked peculiarity of the vineyard-culture of Germany, the vines being usually placed three feet asunder in each direction, making nearly five thousand vines per acre. In Northeastern France, the distance is scarcely over a foot, and nearly forty thousand vines are required to plant an acre. The reason assigned for pursuing this method is the thinness of the soil, and the consequent necessity of circumscribing the groth of both root and vine; and in the the Champagne district, the latter is never allowed to attain proportions beyond those of a shrub, tied to a small stake.

"Having only the methods in vogue in the vine-bearing districts of Northern Europe as examples, our earliest vinyards were generally laid out and managed in conformity therewith. Mr Longworth planted his first vineyard of Catawbas only three feet apart in each direction, and, though he subsequently increased the distance to four feet, I am informed that he regarded that as the extreme limit of departure which should he made from the European models. At North East Penn., Mr. William Griffith planted a vineyard, with vines four feet by six. At Westfield, N. Y., a German has a vineyard planted three feet by three. Buchanan, one of the earliest writers, and Mead, one of the latest writers on grape-culture, recommend four by six feet as the extreme distance, and I do not now recollect any text-book which suggests a distance greater than six feet in either direction for planting vineyards.

"But, however closely our vines were planted in early vinyard cultivation, the experienced, practical cultivators soon demonstrated that the American vine required more room for growth, if the best results were to be attained, and from three feet by three, the distance has, from time to time, been increased until now eight feet by eight is more commonly adopted than any other, where the vines are to be trained to wire trellises.

"But there was one locality in which vineyard culture was commenced about thirty years ago, and where the planters were far removed from outside counsel.—They were compelled to study the nature and the habits of the grape-vine, and thus deduce methods for its treatment. Extending southwest from the head of Canandaigua Lake in the Sate of New York, a distance of several miles, is Naples Valley, which to-day has over a thousand acres of vineyard on one of its sides. Hills a thousand feet high enclose it; and there for many years the American Neapolitans live secluded from the world.

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"Thus it was in the year of grace 1840, when Mr. McKay an intelligent lawyer determined to plant a vineyard in that region; he had no one who had ever seen a vineyard to give him counsel and advice. Arbor and garden training on high trellises were the only methods in vogue in grape-culture of which he had any knowledge; and in planting an acre of Isabella vines, he put them in the ground a rod apart in each direction, a system of planting which requires one hundred and sixty vines to the acre. And to make sure that his ground should be rich enough for grapes, he took advantage of the fact of a drove of cattle dying of some malady, and dug deep pits in the ground he intended for his vineyard, in each of which he placed the carcass of an ox, refuse bones and leather shavings, and over each carcass he planted a vine. He made his trellises seven feet high, and they were completely covered with vines. For a time he gathered good crops, —once as much as six tons from the one hundred and sixty vines planted on that acre of ground. But, as the roots grew rank in a soil of such excessive richness, Nature employed its forces in endeavoring to restore the equilibrium between vine and root; and the result in later years has been a redundancy of wood and foliage, and but little fruit.

"During subsequent years, as the methods pursued in other vineyards became known, the wide planting in the McKay vinyard was the subject of considerable criticism; and this was not without its effect upon those who afterwards established vinyards in the valley. And though never tolerating the plan of close planting, yet the Naples people did lessen the distances, in many instances to twelve by twelve. But the example of high training, however, was followed; and the general hight of the trellis is from six feet to six feet and a half. With the room thus accorded to the vine to grow, the necessity for summer pruning was scarcely ever felt; nor indeed was it introduced until a few years since, when Germans found their way into the valley, and planted vineyards. But the contest between the fruiteng qualities between their and their neighbors' vines, soon caused them to discontinue, or to greatly modify the extent to which they practiced that system of pruning."

—To obtain strawberries in the greates perfection, plant in hills and cut off the runners as soon as they appear. Pull the weeds instead of hoeing them out. If any hoeing is done let it be shallow. Deep culture among strawberry plants will not do.

Transplanting. — The Horticulturist says: "If it were made a rule, in moving trees, always to reduce the last year's growth to *one bud*, half the failures in transpanting would not occur.

For the Western Pomologist.

Bees and Improved Bee Hives.

Raising Queen Bees— What is the Best Form of Hive—Comb Building—How to secure the greatest amount of Surplus Honey, &c.

Before the invention of movable-comb hives, it was pretty generally regarded that success in bee-keeping was a matter of chance —that he who kept bees was lucky or otherwise, just as it might happen—unless, indeed, he sold his luck, or lost it by giving away a hive of bees. But since the advantages of movable-comb hives have been brought before the public, [in this country mainly by the efforts of Mr. Langstroth,] great progress has been made. And although no intelligent and well informed apiarian would now use hives without movable-comb frames, yet the most advanced of bee-keepers are far from being masters of their business in all respects; and as a class we are still in the infancy of the pursuit, and have but just begun to see things as they are, or ought to be.

Queen rearing has within a few years, since the first importation of the Italian bee into this country, grown to be a pretty large business, and many are devoting all their time to it. And yet there are comparatively few of the bee-keepers of the country who know that the queen breeder can secure the fertilization of his queens by drones of his own selection; and fewer still, that such process may be conducted by the confinement of the queen in full view of the operator. These processes are yet but partially unfolded, or rather they are the germs of what may be, and much uncertainty attaches to them, although they indicate a good deal of progress and give hope for more.

As to hives, without some form of movable-comb frames, the bee-keeper has, we may say, *no control* of his bees; and with their use, complete control. But the forms of movable-comb hives are so numerous, and there are so many ends to be secured by the use of them, that the bee man is often confused in his endeavors to decide what form to use. It is an undisputed fact, I believe, that all the hives in the apiary should be of the same style, and the frames of uniform size, so that a frame from any one hive may be used in any other. And I believe the same ought to be the case in the business of queen-rearing, although many breeders use small or nucleus hives with frames about a fourth as large as those in full size hives.—Let us now enumerate some of the objects to be gained by the form of hive, and so better understand what shape we need.

Lifting out combs, destroying worms, dividing [artificial swarming], extracting

honey from the comb, cutting out queen cells,—these things we will not now take into the account, for almost any shape of hive and frame will do for these manipulations. But there are other ends to be obtained, toward securing which the shape of hive and frame has a very material effect.

First, *safe wintering.* As more bees are lost by the unfavorable weather of winter, combined with an ill-shaped hive, than from any other cause, except loss of queens, this is a matter of the first importance in considering the kind of hive we shall use. It is well known that bees cannot winter between solid sheets of honey—that they must have empty cells to cluster in, and at the same time have plenty of honey near, which shall be accessible during a long cold spell. I know of but one feature in a hive that will always secure the winter supply of honey in the right place, and that feature is tallness. The honey must be *above* the cluster of bees, they can then advance upward as they consume it. The capacity of the hive, of course, should be the same as in any other shape. It should be nearly square, probably about ten inches inside dimensions, but fifteen inches or more in hight. The bees will then store their winter supply in the upper portion of the hive, just where they need it. In the shallow form of hive, as the Langstroth is usually made, almost all the winter supply will be stored in the ends and sides of the hive, and but little directly over the cluster of bees. Consequently, in such hives the bees are sometimes starved to death in cold weather, with plenty of honey on all sides—the intense cold making it impossible for them to obtain it, as they cannot leave the cluster; and if they could, the honey would be too cold for them. But in the tall and narrow shape of hive, the honey being directly above the bees, is readily obtained, and is kept warm by the animal heat.

The next important end to be secured to the bees is, *facility in comb-building.* "Can we help the bees in this part of their work?" does any one ask? Certainly. I have seen a fair swarm of bees occupying one side of a Langstroth hive, one full comb of brood being given them for a start, which did not build six square inches of comb in six weeks. The reason was, the entire force was needed to cover the one comb of brood, and to gather their daily food, there being no force left for comb-building. To construct comb-sells, the animal heat must be economized, unless the weather be sufficiently warm without the help of animal heat; and if the hive be so large that all the animal heat is dissipated, no progress can be made. If the full comb of brood had not been put into the hive as above mentioned, the swarm would have occupied one corner, and made considerable progress in building comb. In order to facilitate the construction of comb, therefore, the hive must be adapted to the size of the colony. This can be accomplished better by the use of a close-fitting division board, than in any other way; but the hive should still not be too long; the space in which the swarm is placed should be about as broad as long.

The use of the division board is, then the important point under this head. And we can readily see how its use will enable us to adapt the size of the hive to the size of the swarm. Hence, a hive neither very broad no very narrow in either direction, but one of medium dimensions, with plenty of space *upward*, will, so far, meet our wants. It should however, be larger one way than the other, for if it be square, we have but little use for the division board. Let us suppose, for example, that we make our frames ten inches wide and fifteen high, and place them in the hive cross-wise, having the longest dimensions from front to rear. We may make it long enough for ten frames and a division board half an inch thick, which will be fifteen inches. The inside dimensions of our hive will then be about eleven inches across, fifteen from front to rear, and fifteen and a half deep. This will be large enough for the largest swarms; and for small swarms we can contract by placing the division board near the front, leaving but eight, six, or four frames in the front apartment, as need be.

Surplus honey is the next object of importance. How can we secure the greatest amount in the easiest manner? If we wish the surplus in boxes, we need a large space for them, and that near the brood. As a large colony in a good harvest, will occupy and fill a space to the capacity of 60 to a 100 pounds, our hive should provide this much near the brood. On the top of such a hive as we have indicated, the boxes would be too far from the brood, the bees would not occupy them readily; and besides, there would not be space sufficient without placing two or more sets of boxes over the frames, and that would be too bungling, especially when we attempt to remove frames, which it may frequently be necessary to do. But on the *sides* of a *narrow* hive, tall enough for the winter supply above the brood, we may place boxes to the aggregate capacity of one hundred and fifty pounds, or more, according to the depth of the boxes outward from the main hive. The bees will work in boxes thus placed as readily as if placed over the brood, and they need never be removed in order to take out frames.

But if it is desired to obtain surplus in frames, or by means of the melextractor, one portion of the hive can be set apart by means of the division board, for this purpose, and thus honey be obtained in its purest state with the greatest ease and rapidity.

Queen-rearing is the next object to be considered in the construction of hives. Although all bee-keepers do not wish to become professional breeders of queens, yet every one ought to rear a few for his own use.—And it is of some consequence to be able to do it with as little loss of time, labor and bees, as possible.

In no way can it be so successfully prosecuted, as thinks the writer, as by the use of comb-frames of the size used in the large hives, and by the use of those hives. By using two division boards in one hive, three apartments can be made, each of which can be used for queen-rearing purposes, and when no longer needed for this, the division boards can be removed, and the nuclei united without much trouble, making one good colony. Frames can be exchanged at any time with full colonies, and thus brood supplied to nuclei, or a nucleus can readily be built up to a strong colony by inserting combs of sealed brood from strong colonies.

Our idea of a good hive will thus make it necessary to have an outside casing to cover the boxes for surplus. The casing will also serve to keep the temperature more uniform,—cooler in summer and warmer in winter. The space for the boxes may be filled with dry chaff or sawdust, or other non-conducting material, for winter protection; and by having the casing extend two or three inches above the frames, and the space over them also packed, the protection will be abundant. In a hive with an outside casing, the sides of the brood chamber may be made of half inch stuff, or the ends of the frames may constitute the sides of the chamber, and thus the boxes be placed very near to the brood, which is very important in inducing the bees to occupy them early.

W. C. Condit.

Howard Springs, Cumberland Co., Tenn.

Successful Bee Keeping.—The Birmingham (Iowa) *Enterprise* says: "Mr. John Locke, of Cedar Township, Jefferson county, 6½ miles northeast of our town, furnishes us with the following bee item:—Last spring he had 13 stands in the common Langstroth hive, and one stand in a double (two-story) Langstroth hive. The bees are Italian and hybrid. From these fourteen stands he got thirteen swarms, and 1,030 pounds of surplus honey. From the two-story hive, which did not swarm, he got a trifle over 200 pounds. During the last week in August and the first week in September, the two-story hive collected over five pounds per day in the upper story alone.

Stinoless Bees.—Several attempts have been made to introduce the stingless bee into this country, but hitherto without success. A few years ago the Department at Washington imported from Brazil several colonies of these bees, and an effort was made to winter them in a conservatory, but they failed to raise any young brood, and consequently the experiment was a failure.

Bees and Cider.—At the late meeting of Illinois Central Horticultural Society, L. C. Francis read an essay on bee keeping as connected with horticulture, in which he said that it would be found impossible to keep bees and make cider; the bees fill themselves with cider, and are unable to reach the hive. Mr. Dunlap said he kept bees and made cider too; they never came around his press; it was under cover. There might be difficulty if the press was standing outside.

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PLUMB, J. C., Nurseryman, Milton, Wisconsin.

PECK, D. E. & CO., Nurserymen, Marengo, McHenry Co., Illinois.

PITTS, T. J., Hardy Fruit and Evergreen Nursery, Nashua, Iowa.

RICHMOND, J. & E., Prospect Hill Nursery, Geneseo, Henry Co., Ill.

SHERMAN, BUEL, Nurseryman; European Larch a specialty. Fredericksburg, Iowa.

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VAIL, A. H. & Co., General Nursery, Marengo, McHenry Co., Ill.

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WATSON, B. M., General Nursery and Seeds, Plymouth, Mass.

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Vol. I. DES MOINES, IOWA; LEAVENWORTH, KANSAS, APRIL & MAY, 1870. Nos. 4 & 5.

MARK MILLER,
Editor and Proprietor, - - *Des Moines,*
J. STAYMAN, Leavenworth, Kansas.

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Fruit Prospects in Kansas.

As public attention has been called to Kansas as a fruit growing State, we believe a few remarks on our present prospects of fruit to be of general interest. It is not our object, and never has been, to shrink from our duty, however disagreeable it may be to our feelings, but give the facts as they exist, believing and knowing our advantages for fruit growing cannot be changed by *one* disaster, however great it may appear to be.—We have had a mild, dry, and pleasant winter, and all kinds of fruit came through safe except some varieties of the more tender budded peaches, which were killed by the sudden changes of temperature of the 16th of January, and the 18th to the 20th of February—being respectively 51 and 58 degrees.

We have observed that 60 degrees is the maximum of a sudden change the peach will endure, irrespective of the low temperature. As spring advanced our prospects brightened. The trees were loaded with fruit buds; they began to swell and unfold, and on the 14th of April the peach trees could be seen in every direction in full bloom, and up to that evening there never was a brighter prospect of an abundant crop of all kinds of fruit, and there appeared to be a general rejoicing. But as the setting sun began to disappear, so did our fruit prospects begin to glimmer; for the wind that had been blowing from the south-west with a gale for several days, changed suddenly to the north-west, which blew fiercely for three days, sinking the temperature 55 degrees,—from 73 to 18.

This sudden change or severe cold would not have destroyed our fruit crop had not the previous twelve days been of such a high temperature. The mean being 55.6 degrees, and maximum being 87. Such a high temperature for nearly two weeks had prematurely developed all the fruit buds and brought many to full bloom several days too soon. Had the mean temperature been 50 degrees no such disaster could have occurred, and until it had reached 52 it could not have affected the grape.

In this instance we have 55 degrees in its blooming state. Had it not fallen much below the freezing point our crop would not have been much injured, but in sinking as low as 18 froze the buds to solid ice, which nearly destroyed all our apples, peaches, cherries, and all of the pears and plums; half of the grapes, strawberries, blackberries and currants. The peaches saved, are seedlings—the bloom being only partially expanded—and apples (those very late blooming kinds); and the Late Duke and Morello Cherries, not much developed.

We have examined several vineyards and find fully half of the buds killed, but we think there is sufficient dormant buds left to produce a fair crop of grapes. Although our fruit prospects have been blasted for this season, we should not be discouraged, for such disasters do not frequently occur in Kansas—this being the only case in the last ten years. Should we, however, be subject to such changes late in the season, we have the means at our hand to succeed in fruit growing. Science and art have produced a revolution on this subject in the last few years. We have discovered the exact degree of cold that will destroy our fruit, as well as the degree of heat to develop and mature it. Those conditions we can command, first: by selecting proper locations; second, by choice of varieties.

First:—By planting on northern exposed slopes and cold locations, to keep the bloom back late in the spring when all danger is over. *Second*—By selecting varieties that do not develop the fruit buds so early in the spring, as the following varieties of apples: Raule's Janette, Jeffries, Tetofsky, Bohannan, Fondling, Drap de' Or, Chief Good, Mother, Calawahee, Sweet Swaar, Chandler, Emperer, Black Jack, Peach Apple, Butter Apple, Northern Spy, Knox Russet, Prolific Blush, Hog Island Sweet, Choice. Also the following, which are nearly as late, being but a few days difference: King, Keim, Canada, Dr. Dewitt, Neversink, Winter Sweet, Kansas Sweet, Jersey Sweet. Sciota Beauty, Talmans Sweet, Green Pearmain, Fall Wine Sap, Cluster Pearmain, Morgan's Favorite, Striped Gilleflower, Marks, Adams, Printz, Krowser, Chronicle, Oskaloosa, Late Green, Broadwell, Brittle Sweet, St. Lawrence, Hampton's Honey, Terry's White Fall, Henwood Bellfleur, Flushing Spitzenburg, Summer Bellfleur, Pa.

In the above list of apples we have fifty varieties. Had we a sufficient number of these this season we would have plenty of fruit in almost any location. We might also make selections of late blooming peaches, cherries, and grapes.

The peach will endure a much harder freeze than the apple, pear, cherry, or the grape, when only partially expanded; while in its dormant state it will not. The Clinton, Osee, and Concord grapes, which are among our hardiest varieties, have suffered much more than the Catawba, which is much more tender, but the buds were not so far advanced.

This is no theory, for we find many Wine Saps not injured on cold ground, while other Wine Saps on warmer ground, not ten rods away, were all killed, being, of course, more fully developed. Consequently, had this cold snap come a few days sooner it would have done but little harm, or could our fruit trees have been in a cold situation the result would have been equally favorable. Or under existing circumstances had we a sufficient number of late blooming sorts we would have escaped a total loss.

It is these and many similar meterological facts we have been for years laboring to show to the public:—proving peculiar characteristics of each variety of fruit to withstand the vicissitudes of climate, etc. To learn these facts and overcome these difficulties is the science of successful fruit growing. We have classified hundreds of varieties under all the conditions observable, and we believe we have arrived at satisfactory meterological data to determine the varieties adapted to any given locality or vicissitude of climate.

J. STAYMAN, *Ass't Ed.*

Reported for the Western Pomologist.

Report of the 3d Annual Meeting of the Northern Illinois Horticultural Society.

HELD AT DIXON, JANUARY 25, 26, & 27, 1870.

FIRST DAY—MONDAY SESSION.

TUESDAY, January 26th.—The third annual meeting of the Illinois Horticultural Society commenced its session in this city to-day. President Cochran being dangerously ill, Vice-President A. Bryant Jr., is the presiding officer. The session having been opened by prayer by the Rev. Mr. Sickels, Maj. Cheney, of Dixon, welcomed the members of the society to the city, and extended to them its hospitality. The Vice-President responded in an appropriate speech, after which he delivered the annual address, announcing the severe illness of President Cochran, of whom he spoke in highly complimentary terms. In speaking of the objects of this society, he said that this society should be gathering information for this section of the State; the varieties of fruit suitable for other localities were unfit for this part of the State. He thought we could be successful in fruit growing only by raising the seed in our own soil. He favored planting forests over the extensive prairies of Northern Illinois, and thought geology should be carefully and closely studied in connection with horticulture. The address was listened to with marked attention, and the speaker's suggestions met the hearty approval of all the members.

A committee of three were appointed to prepare business for the society.

THE REPORTS OF STANDING COMMITTEES

were then read.

Mr. McWhorter, of the committee on geology, made a report, referring mostly to the county of Mercer, the soil of which, rich in calcareous matter, was well adapted to fruit raising and grape growing. This report, although local in its nature, was highly interesting.

Mr. Robson, of Galena, of the committee on ornithology, thought that ornithology should be carefully studied by every one who would become a successful horticulturist, and defended the birds in general in an able and well written report.

Dr. Hill, State horticulturist, stated it as his experience that the Oriole did not destroy the curculio as asserted by Mr. Robson, and claimed that this bird marred both the grape and the cherry by wetting its bill on them, and that it not only would not eat caterpillars, but would also eat the bugs that did eat caterpillars, and took issue generally with Mr. R. on his assertion that birds were the friends of man, and especially the horticulturist.

Mr. McAfee, of committee on Botany, in an exhaustive report, argued that this study should be popularized by doing away with its cumbrous technicalities which were used to mask the real meaning, and rendered it so dry and uninviting a study.

Dr. Nygatt, of the committee on Entomology, had no essay or speech prepared. He had studied with considerable care both the white and brown species of bark-louse. They hatched from 20th of May to 10th of June according to the season. He thought both varieties equally destructive, but that neither were as much so now as a dozen years ago. Since the hard winter of six or seven years ago he had seen none in his orchard. The lice hatched after the apple was formed, and he had destroyed them by applying soft soap with a common blacking brush, finding fully four-fifths of them on the old growth of trees.

Mr. Harris had used lye on his trees, but it defoliated the branches, and in the fall he had again found lice an the trees.

Dr. Mygatt said Mr. Harris had erred in not waiting until the lice hatched. That they must hatch after the apple had formed, as they were found on the apple when it was the size of a pea. If he had applied the lye then, he would have destroyed them. He considered the brown variety of little harm to the pear tree, but that the white was very destructive.

Mr. McAfee thought that brine would be beneficial as a remedy against old bark-lice, as it would diffuse through the animal membrane and destroy it. He stated this as a thing it would be well to experiment upon.

Mr Robson thought these lice must be blown from place to place, and in support of this supposition stated that during a high wind he had spread a cloth forty feet from a tree, and in three hours had found it covered with them.

Session adjourned until 1:30 P. M.

AFTERNOON SESSION.

Charles Andrews of Marengo, and Wm. A. Nourse, of Moline, were appointed recording Secretaries.

The report of the committee on fruit lists being called for, Mr. Bryant, Sr., reported that the wine-sap was an unprofitable apple in Bureau County.

Mr. Scott, of Gelena, thought the Red June should be taken from the list. He considered the wine-sap a good variety, and the Soulard crab excellent. He did not consider the latter a wild crab, but that its parent was a common apple.

Mr. Soulard had grown the Soulard crab for three or four years, and thought its leaf resembled the apple more than the wild crab.

Mr McAfee thought the Soulard a hybrid. He said it was impossible to prove that a young tree was a hybrid, but gave a botanical explanation in support of this presumption.

Mr. Schofield, chairman of the committee on "Ornamental and Useful Tree Plantations," had but recently learned that he had been appointed on this committee, and did not come prepared to give a full report. He considered all tree plantations as both ornamental and useful, and recommended a system of tree planting on every farm, including one sixteenth of its extent, and thought that the society should exert its influence to secure both general and State legislation in furtherance of this project. He thought that pine and larch especially should be planted in all the public domain east of the rocky mountains, and also favored Mr. Medill's plan of transplanting, and deemed it of the highest importance that the State should extend its assistance to this object.

The Secretary was instructed to forward a copy of this report, eliminating that portion referring to Mr. Medill's plan, together with such action as this society might take on the subject, to the State constitutional convention, and a committee of five, consisting of Messrs. A. Bryant, Sr., Tyler McWhorter, Lewis Ellsworth, Samuel Edwards, and E. C. Schofield, were appointed to draft and present resolutions to the convention, looking toward the procurement of State aid in this important matter.

Mr. S. G. Minkler, of committee on orchards and vineyards reported that those varieties of apples with large leaf, and downy underoeath, were the most fruitful class the past year. The failure of other varieties he attributed to the perforating of the leaf by the hopper. While the thick, downy leaved varieties easily resisted the attacks of this insect, these thin leaved varieties fell victims to its ravages.

Mr. McAfee coincided with Mr. Minkler, and said his observation had extended to the grape.

Dr. Hull thought no tree on the list should be discarded on account of the scab caused by lice. They could be easily killed by throwing tobacco water and soap upon the tree with a garden engine.

Mr. McAfee, of the committee on vegetable physiology read an able and interesting report, dwelling in connection with this subject, especially upon preservation of the roots of trees, and the care they required in packing, claiming that the roots should on no account be bent.

On motion the reports of the several committees were referred to the publishing committee.

After considerable discussion on the subject of revising the apple list, it was finally decided not to make any revision of the list this year owing to the past unfavorable season.

Mr Edwards then read an essay on "timber shelter for prairies. Mr E. deemed this a matter of great importance, and recommended that every farmer plant trees, especially trees of rapid growth and that would be valuable when grown. White willow, Norway pine, hemlock, white pine, and others of the pine family he thought best to plant. In planting, the plan he had adopted, and considered best, was to plant the deciduous trees on the outside of the belt.

Suel Foster, the veteran horticulturist of Iowa, gave an interesting essay on horticulture. He thought that the youth of both sexes should be taught the general principles of horticulture, and claimed that if girls were so taught, and were required to spend three hours in each day in the garden receiving practical instruction in everything relating to horticulture in all its branches that it would become so interesting, and at the same time so useful, that they would desert their pianos and their in-door ornaments for what would and eventually must become a science and an art. He spoke in general terms on the subject of tree planting.

EVENING SESSION.

Capt. Beebe, of Galena, in a long and interesting address, explained the manner of sprouting buds and cuttings in green houses, by means of a tank and lamp, and exhibited to the society the manner in which the lamp was worked.

Mr. Robson said that by this means fuschia cuttings were sprouted in two weeks, and verbenas in three.

Dr. Hull delivered an address on the growth of trees, and the theory of sun-scald.

Adjourned until 9 o'clock to morrow morning.

WEDNESDAY, January 26.

MORNING SESSION.

After prayer, by S. G. Minkler, the question of the revision of the pear list was brought up, but after some discussion it was decided to leave it unchanged.

In discussing the

PLUM LIST

a controversy of considerable length arose in regard to what is known as the Townsend plum. Mr. Robson, of Galena, gave a history of this plum, claiming that a Mr. Hinkley disseminated this tree over forty years ago. He thought it was not a seedling of the "Magnum Bonum," but of the "Chickasaw." That it was not identical with the "Wild Goose," but of the same species He

moved that the name of this plum, which is known on the society's books as the "Townsend Plum," be changed to "Hinkley"

Mr. McAfee moved an amendment that a committee of three be appointed to investigate *ad interim*, the different varieties of the "Chickasaw" plum, and the origin of the same, and report at the next meeting of the society.

The motion, as amended, was adopted.

A committee of three was also appointed to prepare a plum list for the future action of the society.

Upon the calling of the

CHERRY LIST

a good deal of discussion ensued in reference to the different varieties. The following list was adopted—Early Richmond, Late Kentish.

Mr. E. H. Skinner then delivered an essay on the Russian apple. He had deemed it necessary to procure a hardy apple for the northern portion of Illinois, and had sent to Russia for varieties, some coming from the 62d degree of North latitude. He thought that the Duchess of Odenburg a good type of the Russian apple. These apples were claimed to be coarse in quality. This he admitted as true, but thought that they should not be discarded on that account if they would meet all the requirements of our changeable climate. Mr. Skinner proposed to donate scions of all his Russian varieties to all members of the society. A vote of thanks was extended to Mr. S. for his donation, and his list ordered printed.

Suel Foster made extended remarks on horticulture, the substance of which is heretofore given.

Adjourned until 1½ P. M.

AFTERNOON SESSION.

Mr. Platt, of Chicago, exhibited some very fine California fruit, amongst others the Pound pear, and the Nicksjack apple. This latter is a beautiful apple, and Mr. P. said he had never seen a single defect in this variety. He thought that the Californians could not successfully compete with us, by sending either apples or pears to this market neither of which was so delicately flavored as our own fruit. The freights were too high, it costing 7½ cents per pound. Grapes were sent from there that were very far superior to any that we could grow here, and consequently were in demand.

Mr. Budd, of Iowa, read an essay on the subject of grafting the pear on the white thorn. He thought that failure heretofore had resulted from mistaking the common thorn for the white thorn. Seedling thorn plants should be used, to obtain which the seeds were mixed with meat and fed to cattle, and the droppings planted, and in the following spring the seeds will germinate, whereas by natural planting it requires two years. Dr. Hull thought that a weak preparation of sulphuric acid would promote early germination, but thought that only pear seedlings should be used for grafting, and after some discussion and debate a resolution recommending the pear seedling up on which to graft the pear, was adopted.

THE ELECTION OF OFFICERS

resulted as follows: President, Samuel Edwards; Vice-Presidents, D. C. Schofield, J. B. Bubach, Lewis Ellsworth, Dr. Mygatt, and Edgar Sanders; Corresponding Secretary, D. Wilmot Scott; Recording Secretaries, Charles Andrews, and H. D. Emery; Treasurer, E. H. Skinner; members of Executive Committee, J. W. Cochran, S. Edwards, and James G. Soulard.

A very finely written poem by T. Hempstead, of Fairbury, entitled "The Ideal Prairie Home," was read by Samuel Edwards, amidst frequent applause.

The list of ornamental trees was left unchanged

Judge Knapp, of Wisconsin, said he had known cases of the plum being protected from the curculio by stable manure; others denied that it had any efficacy whatever.

Dr. Henry Skinner read an essay on entomology and its study, after which, on motion of E. H Skinner, the society passed a resolution requesting Gov. Palmer to appoint Dr. Skinner State Entomologist to fill the vacancy caused by the death of B. D. Walsh, A. M.

A LIGNARIUM

containing 130 varieties of native trees was produced by H. H McAfee, who read an especially pleasing and interesting essay on the value of tree planting, and its effect on rain falls. He thought that in order to obtain a proper climate at least one-tenth of the area should be covered with timber.

EVENING SESSION.

Dr. Warder addressed the society on the subject of shelter belts and tree planting, after which E. C. Schofield offered the following resolution, which was adopted:

WHEREAS, The trustees of the Industrial University have adopted a plan for a plantation of useful forest trees, embracing some thirty species and to cover some seventy acres, therefore,

Resolved, That we trust that the plan will be carried out at as early a day as possible, in order to give the farmers of the State practical lessons in tree planting.

THIRD DAY.

MORNING SESSION.

A general discussion on "the agencies operating injuriously to successful fruit culture," was the first thing in order, and as every one had something to say on this subject, three minutes were allowed each sperker. After this discussion Mr. McAfee made

A PRESENTATION

of his Lignarium to Dr. Warder. This fine gift was received by the Doctor on condition that he could pass it over to to the Industrial University.

Announcements having been made of the meetings of the Central Illinois Horticultural Society and the Wisconsin Horticultural Society, Mr. Shephard offered the following:

WHEREAS, By an act of Congress, a fund for the endowment of institutions in each State, has been granted for teaching as its leading object, those sciences relating to agriculture and the mechanic arts, without excluding other scientific and classical studies, and including military tactics, for the advancement and elevation of the laboring classes, and,

WHEREAS, In our State Institution, organized under and in accordance with the provisions of said endowment, the trustees do, by their published circulars, give each student the right to decide the course of study to be pursued, irrespective of the declared design of the endowment, therefore,

Resolved, As the sense of this society, that any and all teaching in said institution that supercedes or comes in competition with the declared leading design of such grant should be ruled contraband, and be disallowed at all times in such school.

Resolved, further, As the sense of this society, that it is imperatively necessary for the preservation of the funds for the leading design of the grant that the charter of our State Institution should be so amended as to confine its teaching to agriculture and the mechanic arts, until the pupil has taken a full course in them, and then, if so desiring, may have such classical and literary instructions as the institution may be able to afford.

Resolved, further. That the exclusion of the female sex from a full participation in the advantage of such education in our agricultural schools, as they should be able to give, is a flagrant wrong to both male and female, and ought not to be tolerated.

Resolved, That this society earnestly ask a representative convention from all the county societies, agricultural, mechanical, and horticultural, to take into consideration the present state and future prospects of our Industrial University, and make such indication of their wishes as will be a sure guide in attempting their reformation.

Mr. Shephard, in support of his resolutions, thought that farmer's sons and daughters should be educated for the new order and condition of things, and that farmers should know something of chemistry, geology of soils, of botany, and everything that will aid him in becoming a better farmer.

Dr. Warder and President Edwards having spoken in favor of the motion, and in reference to the Institution, the motion was unanimously adopted.

Prof. Shaw, of Mt. Carroll, in a lecture entitled "Breath of the Ocean upon the Land," gave an interesting account of the effect that the ocean has upon trees and plants, influencing and affecting the atmosphere from which is derived so great a part of the plant food, and nourishing their vigorous and healthy growth. He thought that man could modify the climate to a great extent by culture and tree planting. Trees and forests would absorb the plant food that otherwise would be borne away on the wind and lost, and showed how waste and desolate the rich lands of Asia had become by the removal of its great forests.

Mr. Shearman had just returned from Nebraska and displayed apples of the Pennock, Ben Davis, Fall Pippin, and Tulpehocken varieties, which were sent by the President of the Nebraska State Horticultural Society, a greeting to this society of a sister State.

A committee consisting of S. D. Davis, Lewis Ellsworth, Smily Shephard, Arthur Bryant, and Prof. J B. Turner, were appointed to call a convention at some suitable time and place, to take measures to investigate the subject of industrial education as relating to the Industrial University.

After the passage of the usual resolutions the society adjourned.

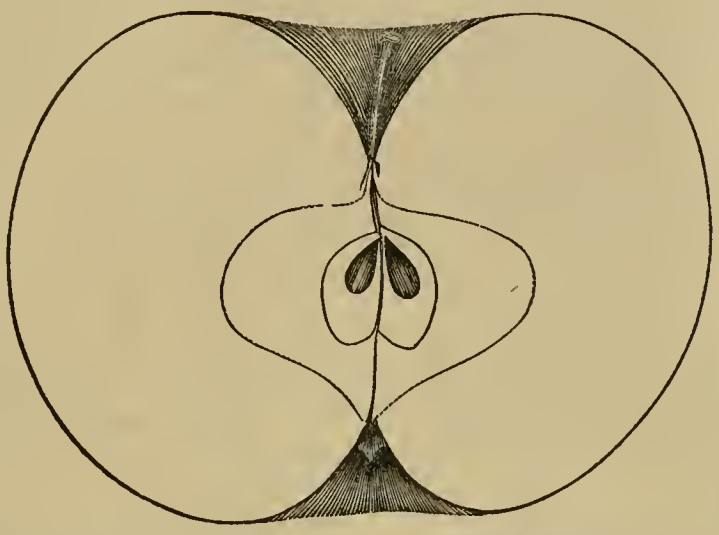
POMO, *Dixon, Illinois*.

The forests are dying out in certain parts of Virginia. The chestnut trees have already submitted to some deleterious agency, and their growth is nearly exhausted, and this year the oak, and in fact all the trees of the forest in certain sections, are dying. No explanation of this disastrous visitation has yet been given.

A correspondent of the *Western Rural* sent 1,993 pounds of sunflower seed to an oil mill and had returned to him 212 pounds of oil and 1,781 pounds of oil cake. The oil he finds a superior lubricator and thinks it may be valuable for other purposes.

Kansas Sweet.

Fruit average; weight 8 to 10 ounces; form flat, slightly conical; skin greenish yellow, covered with broken stripes of light red and crimson; dots small, black, scattered; stem short, rather thick; cavity regular, wide and deep; eye small, closed; basin narrow and shallow; flesh yellowish white, fine grained, juicy, crisp, breaking very tender and pleasant, sugar sweet, quality excellent; core medium, compact; capsules small; seeds few, long pointed, light brown, plump. Season, November to January.—Use, table. Tree erect, compact, vigorous, healthy; bore eleven years from seed; shoots woolly, short jointed. Seedling, by B. Atkinson of this place. This is the best sweet apple I am acquainted with, and think it worthy of cultivation.



J. Stayman, *Asst. Ed.*

For the Western Pomologist.

Russian Apples.

Mr. E. H. Skinner, of Marengo, read an essay before the Northern Illinois Horticultural Society, that presented many points of interest to horticulturists living in this and more northern latitudes.

The growing interest in procuring hardy varieties of apples that would withstand the severe rigors of the climate of the Northwest, of which the district embraced in the bounds of this society forms an integral part, had induced him to procure from Europe a number of varieties of apple, originating in a high northern latitude—some of them so far north as 62½ degrees.

Four hundred of these varieties were obtained from Dr. Lucas, Director of the Pomological Gardens of Puttengen, Germany, and were accompanied by a list of their names in the German language, which had been, through the kindness of Mr. C. W. Murtfelt, of St. Louis, interpreted and written out for him in English.

Nineteen of these varieties were of Russian origin, and were those offered by him as premiums to the members of this society.

He spoke of the merits of this class of apples, and the necessity for them in the rigorous nature of our climate. He made no pretensions to a knowledge of the science of Pomology, but would call attention to the fact that Illinois covers a number of degrees of latitude, and that the fruits and plants suited to the more southern portion, are not adapted to its northern region, for the supplying of the wants of which this society was organized.

It was not for the end of detracting from, but rather adding to the general stock of knowledge valuable to the whole country, and he felt proud to believe that the capacities and prospects of this society were such that he could not doubt it would be made the peer of any organization of like character in this State or any other State. But he was diverging—

In regard to these Russian apples, he considered these new varieties as promising of hardiness and productiveness beyond any of the old sort.

The Duchess of Oldenburg he cited as a type of the class called Russian apples, and if the crops he had raised on sixty-two trees in the last five years, were to be taken as an example of productiveness of these new sorts now being tested, it is certainly a promising experiment.

The Duchess is found quite hardy as far north as St. Paul. Unfortunately it does not fill the place of a winter apple; and if among the nineteen varieties he now offered to this society, there should be found one single winter fruit, as hardy and productive as that, he would consider such a result a more honorable monument than to have a marble statue erected to his memory.

It had been objected, he said, that these Russian apples are not equal to our native sorts in flavor. He thought this was answered by the nature of our climate, that left little to choose between growing this class of apples and the doubtful production of the finer sorts, and he wished to express that he felt a common sentiment with his neighbors of Iowa, Minnesota, and Wisconsin, one of whose delegates had so truthfully said, "our trials, our soils, our climate, and conditions are the same."

The Northwest is undoubtedly the most promising, and at the same time the most difficult field for the fame of those who aspire to become our national pomologists. Meanwhile, he said, as true patriots and philanthropists, and genuine lovers of Nature's good gifts, let us continue our efforts to improve, and disseminate the fruits she distributes as the rewards of patience and industry.

R. Hathaway, *Little Prairie, Mich.*

Transcendent and Hislop Crabs.

At the last annual meeting of the Wisconsin State Horticultural Society, Mr. C. Andrews of Marengo, Ill., read an interesting essay on the crab apple from which we clip the following in reference to the Transcendent and the Hislop:

"The Transcendent and the Hislop apples have become more widely known than any except the Red and Yellow. They have no authentic history. Even the section of their origin is not with certainty known. But in less than 20 years they have acquired a popularity which has rendered them the most popular nursery tree in the Northwest.

The main facts regarding the value of these two sorts, may be briefly stated thus: The trees, like all of their species are perfectly hardy as far north as they have been planted, and in every other section are strong growing and productive. The fruit is medium in size, very handsome, and in use from August to November. In quality, too austere for the choice dessert, but once established in the kitchen they are never discarded for any other sorts whatever. A fair test of value is the price a fruit will bring in market when in competition with others. The Transcendent has sold in St. Paul for $1.25 per peck, when large apples, shipped from Illinois and Michigan orchards, brought only $1 per peck from the same store. The same apple has for the last four years brought in the markets of Chicago an average of $1.50 per basket, or $4.50 per bushel, when the best Eastern apples were in good supply at $5.00 to 6.00 per barrel.

The Dracut Amber and Christine.

At the last meeting of the Mississippi Valley Grape Growers' Association, the Dracut Amber and Christine grapes were brought up.

Mr. Husman said the tendency just now is in favor of white wines, but if any new dark grape is worthy of attention it is the Christine. It is very healthy; last year it had the healthiest foliage of one hundred varieties. When the vine becomes about four years old it produces well, not large bunches, but three or four to a shoot.—Colors about the time of the Hartford, berry about same size as Ives; bunch, very compact, and generally shouldered. Samples of wine were very superior. It has a thinner skin than the Ives. Ripens about with the Hartford.

Mr. Mason spoke of the Dracut Amber, which he fruited last season, and found the demand very great on account of the color and size. They are inferior to the Concord, but sell well. He had no doubt they would make a good wine. The vines are very healthy and not subject to rot. The skin is very thick, and it will bear transportation.

Fruit in Minnesota.

We glean the following items from the *Farmers' Union*, published at Minneapolis, Minnesota:

"The Minnesota State Horticultural Society requests every man and woman who have ever raised an apple in this State to send their names to the Corresponding Secretary, J. W. Harkness, Esq., at Faribault, Rice Co. We hope they will not fail in this, as it is necessary that the Secretary should know those who are engaged in the good work."

It is said by some that grapes will not mature in this climate. This is not so. The Delaware, Concord, Hartford Prolific, Clinton and Oporto all ripen in this State just as sure as they do in Illinois, and the quality of the grapes is quite equal to those produced in any other State. The last named variety is too sour to be palatable, but we learn from Chas. Hoag Esq., that it is most an excellent wine grape.

From two Transcendent trees, William Berkendorf raised the past season twenty bushels of apples. This will do. We learn that six bushels of transcendents will make a barrel of cider. If this is true we do not know of any reason why Minnesota cider should not be as celebrated in a few years from now as our wheat is at the present time in the East.

The Curse of Many Varieties.

No doubt what I have to say will not be duly appreciated by the amateur horticulturist, or by the progressive culturists of either fruits or vegetables, but it is an undoubted fact, and one which is daily becoming more apparent, that the number of varieties of both fruits and vegetables is something large—much larger in fact than any person would wish to try at once: and thus, if you intend to plant, you will have to rely on the word of some one for the merits of the kind or kinds in question. I do not say this is wrong, for I believe that all should contribute their stock of information for the good of their fellows; but I do say that there are many more varieties than are absolutely necessary for the good or the prosperity of the growers. By having such an array of names, it tends to confuse the beginner, leaving him in a very undecided frame of mind, for it is very seldom but that he sees "all" of them marked good, excellent, etc., etc., and so he gets a few of each kind. Sometimes the number amounts to forty or fifty different sorts. Now we will say that this is all right; but as soon as the trees begin to fruit, the first difficulty presents itself, for there being so few of one variety it is not possible to get together enough for market until the second or third, and sometimes the fourth fruiting year; so if the planter is in moderate circumstances, it may inconvenience him very much, for no doubt he has had glorious visions of golden gains, "all" obtained from the products of the trees. It does not make so much difference with those who plant for experiment and pleasure only, for they generally have plenty of the needful, so it cannot do them much harm.

This mania—I cannot call it by any other name—is not confined to fruit, but has very naturally included vines, vegetables, plants, and in fact almost everything; for should you pick up the catalogue of some extensive grower or dealer you are at a loss to decide which are the most worthy of your attention among the very many that you see named and described; and a good rule is not to try any "new" thing yourself, but have others do it, who are more willing, and as a matter of course, more able to stand the loss, should there be any.

I speak to those who have only small means, but who are very enthusiastic to be culturists of some kind, for a little information of the right kind, and a little forethought, may save many dollars for the enthusiast, for we, as horticulturists and fruit growers of several years' standing, know to our sorrow, for we have had a large apple out of that basket, and should we wish to plant fruit again—which we shall and are doing constantly—we shall confine ourselves to from two to twelve different varieties.—We do not particularly regret our venture, for it has shown us what kinds will succeed, although we did not try near all the different sorts.

Do not always base the value of a fruit on the appearance which the same variety gives when upon show on the table of some horticultural society, for it is always the case that these are the largest of their kind, generally forced by some particular process, but the general quality can be had by deducting about one-fourth of its merits, and the remainder will generally give its true value.

Should more of our farmers or horticulturists give an account of their experiments, facts, etc., so as to post others, there would be less made by unprincipled dealers, by selling trees, etc., which they know are not profitable to grow; and should some grower cut down his list, say one-half, he would be doing a great good to the fruit growing community, and would prevent the necessity of writing on "the curse of many varieties."—*Cor. American Farmer.*

A Country Place.—It is a great mistake to ever *finish* a country place. As soon as a man has got to the end of planning and improving his garden, year by year, he has got near to the end of his highest enjoyment. As long as you can keep your invention at work in devising something new, the imagination has play in picturing new scenes and combinations, which shall excel any that have yet been formed. It may be, indeed, the new will not really surpass the old; but the act of planning and executing, and the sight of the novelty keeps one pleasantly employed, with the possibility of a real improvement.

Hence, we say, do not be in haste to get done. Have a general plan of your grounds drawn up on paper, to which you will adhere, but leave the details open to frequent alterations. We know a friend who in his flower garden tries his hand a few years at roses, culling the best kinds from all sources far and near; then he takes to bulbs, and collects a large assortment of every kind. Last year his hobby was rhododendrons, azaleas, and kalmias. And we must confess his grounds were a grand show. He was full of his subject. He could tell you to a nicety the best composition of soils for these new and rather fastidious shrubs, just so much sand, and so much leaf mould, and so much common earth. What his next passion will be we can't predict. But he will go year after year, from one specialty to another, always having something new, and never tired of his beloved garden. He is now upwards of sixty years old, yet is, in feeling, quite a young man.

So let it be in the fruit garden. Leave room for new apples, new pears, new grapes, new berries. Keep a look out for new hints in regard to everything concerning a country place. And thus the routine of country life will never grow tiresome, but increase in interest from year to year.—*Rural American.*

Last year, from a grove of 100 maple trees in Berkshire, Mass., 500 pounds of sugar were made in five days. Vermont is the largest producer of maple-sugar of all the New England States.

Hale's Early Peach.—The *Journal of Agriculture*, (St. Louis), says: "In this region, and especially in locations south of this, the Hale's Early, which was very popular a few years ago, has proved for two years past worthless, on account of its tendency to rot. We state this as a caution to those who are about buying for the Spring's planting. The same Journal says of the Missouri Mammoth Blackberry: "Nearly all of the reports of this berry since last fall, which was about the first of its bearing to any great extent, agree in showing that it is of no value. From all that we have heard and seen of it, our opinion is that it is a humbug. We have never planted it.

Birds in New Zealand.—It is said that birds are decreasing in New Zealand, and the cause charged upon the honey bee which has been introduced within a few years past. It is said by some that many species of the smaller birds there obtained a large portion of their food by thrusting their tongues into the nectaries of flowers; but the bees are now often found in these flowers, and not liking the intrusion of the tongue sting it and the result is death to the bird.

Others think that these birds, being more or less insectivorous, mistake the newly introduced bee for a native insect on which they prey, and in attacking the bee get fatally stung.

Keeping Squashes.—A correspondent of the *American Agriculturist* picks and stores his squashes in September and has them sound till the following June. He says, "Gather the squashes for late keeping between September 1st and 10th, taking only those that grow near the root; put them on the shelves where they are to be kept and keep them dry and cool.

Eastern Virginia Fruits.—The Norfolk Journal notices a very handsome silver medal awarded to Mr. G. F. B. Leighton, President of the Norfolk Horticultural and Pomological society, for his exhibition of Virginia pears at Boston, by the Massachusetts Horticultural Society. The Journal says:

"This is the first medal for fruits given to the South since the war; but the earnestness with which our people are entering upon the cultivation clearly indicates that it shall not be the last. So far Mr. L. leads the van in this good work.

The pears exhibited at Boston by Mr. Leighton are the same that won the first premium at the show of the Pennsylvania Society at the time of the meeting of the American Pomological Society in Philadelphia. In a note to us sometime since Mr. Leighton says:

"There is no good reason why Eastern Virginia may not become the fruit-garden of America. Fifteen bushels of Duchess pears were sent from this county that averaged sixty-four pears to the bushel; and although offered on New York market at a time when peaches were in full blast, not a bushel sold for less than $9. Out of an orchard of 5,000 trees, not twenty-five have been lost from blight or disease. In fact, out of 2,500 Duchess, not one has been lost, and only one Bartlett out of 800. The strawberry crop of 1869, in the surroundings of Norfolk, foots up about three million quarts, against one million in 1868."—*Rural New Yorker.*

For the Western Pomologist.

Small Fruit-Growing.

Ten years experience—Propagation of the grape. Cause of mildew and other diseases of the vine, etc.

Mark Miller, *Dear Sir:*—I will give you my experience in small fruit-growing.—The interest that will be felt by some to hear from the place furthest west, (east of California,) where fruits have been tested, will make up for any incompetency of the writer, who was laughed at in 1857, when he commenced his small fruit experiments. My time was devoted exclusively for ten years in testing the adaptability of varieties to our soil and climate and the different modes of propagating plants, before I planted any for profit.

My experience teaches me that the best possible quality of plants that can be procured are the cheapest at any thing like a reasonable price, especially of grape vines which have become so cheap that propagators cannot afford to produce the best quality. I see that some writers assert that better plants can be produced from "cuttings" than from layered vines. If I should make such an assertion it would be because I would have to throw away the wood at pruning time.

I know that many, perhaps every grape-grower, will differ from me when I say, that I do not believe that mildew will materially affect a perfectly sound grape vine. If I am right, then we ought to propagate the best quality of roots, and I will give you the method by which, according to my opinion, the best plants can be propagated. As soon as the buds begin to swell in the spring, or even up to June, I would dig a trench about five or six inches deep and "ring" the cane I wanted to layer; or as Mr. Foster does, take a piece of wire and twist it tightly around the cane below an eye; the distance below is owing to how far I would want the roots to emit below the eye. The roots will all be found between the ring or wire and the cane produced from the eye.

We know that the sap courses up from the roots of the parent vine through the cellular vessels of the wood, and after undergoing a process in accordance with nature's law, by the leaves, it returns to the roots again *between* the bark and wood. If the flow of sap is checked by ringing below an eye, or the new cane produced from the eye, if there is any fruit on it, the sap will go to the enlargement of the fruit, while the maturity of the grapes will be hastened two or three weeks. If the vine is layered the same effect will be produced on the roots; it not alone hastens the maturity of the roots in autumn, which is a very important matter and makes the roots larger, but they are far more numerous; besides the roots all issue within a quarter or two inches of the collar, or any distance that the will of the propagator may desire, instead of being scattered along the cane from one to two feet as is the case when the vines are propagated by the usual mode of layering. This is certainly convenient in mailing, besides the additional value of the plant over the common ones. The above is not the only advantage that decorticated plants have over those produced by the common method; but there is an equilbrium between the cane and roots.—What grape-grower has not seen large canes and few small roots scattered along the old layered cane of the parent vine, and *vice versa*, a very small cane and numerous large roots? The philosophy of this is, that a large cane has more leaves and sap than a small one, there is not as much sap coursing through the cellular tubes of a small layered cane from the parent roots as a large one, the result is, that when the flow of sap is checked it must go into the roots of a layered plant which increases the size of the layered plant and hastens the maturity of the wood of the roots. In the layered plant, (by the usual mode) there is always a large portion of the roots that have not time to ripen the wood on account of the frost checking the maturation of the roots so suddenly in the fall; therefore a large quantity of unripe sap is found in the roots and cane, when the growth is stopped by the autumn frosts. This immature sap will circulate through the wood of the plants as soon as the warm days of the vernal season approach, and consequently must affect the whole vine injuriously the second year. Here then we have the incipient seeds of defectiveness sown in the plant the first year after it is separated from the mother vine. It may not be visible to the eye, but does not our reason teach us that the embryo grains of disease have been unintentionally, but as carefully planted as the vine itself. The seeds of disease may be sown in the human body many years before the searching eye of a skillful physician can discover it; it may not even be known to the man in whose body it is implanted, but under unfavorable circumstances it may become suddenly developed. May it not be so with the hidden disease of the plant; and when unfavorable conditions appear may not the germs of fungi floating through the air, seize with avidity upon the invisible decomposing wood which may be the genial home of mildew? But my letter is too long, which must prevent me from pursuing this subject further, although I would gladly do so if space permitted.

In conclusion then, let me ask, if it is any wonder that mildew affect our vines when we call to mind that millions of plants are yearly distributed throughout the country which are propagated from the unripe wood of the "prunings" which otherwise would go upon the "brush heap?" Would it not be strange if disease did not seize such vines with an unrelenting grasp? Will not every sciencéd vigneron admit that the countless millions of seeds of the fungi floating in the atmosphere take hold of a weak plant much sooner than an apparently healthy vine? If so, may not the vine which is healthy, so far as the naked eye is concerned have decomposing wood? Then would not reason teach us that a *perfectly* healthy plant would have power to resist the attack of mildew? If the healthiest plant can resist the mildew better than a weak one, is it not better to produce nothing but the best quality? My continuous experiments since 1857, have impressed me with this opinion, and the best possible plants that I have been able to produce was by decerticating the cane root, pruning them in the fall, peeling them in, so as to be calloused in spring. I am aware that it takes the strength away from the parent vine, so much so, that we cannot, (as I have frequently said,) propagate oftener than once in three years from the same parent vine. The query comes in. Will it pay? I answer not at the present price of inferior vines. The difference in the value of inferior and superior plants is so little understood here, on the border of civilazation, that the best quality will bring but a trifle, if any thing more than an inferior plant, except among those who have tested the inferior and superior quality of plants. As I believe that perfectly healthy plants will be comparatively free from disease, if not altogether, providing that they are kept healthy, I shall, until convinced to the contrary, discourage the propagation or planting if any but the best quality.

A. M. Burns, *Manhattan, Kan.*

For the Western Pomologist.

Hollingsworth on Grimes' Golden."

Mark Miller: *Dear Sir:*—Some ten years ago myself and brother set quite a number of apple trees of numerous varieties; we also top-grafted a number of kinds where we wished the heads to put out, and among these last was "*Grimes' Golden.*" I should not call it as early a bearer as some other varieties. Perhaps it is a full average in this particular. When once in bearing it is equal to the Jonathan in amonnt of fruit, a more certain bearer, and a better tree—fruit more evenly distributed throughout the tree, and very uniform in size and quality. Should be gathered early to keep best—not a long keeper—as good, or better than Jonathan in this particular. Mr. Johnson Meek, who has had it longer than any body else in Iowa, (20 years) says it is a much better keeper than Jonathan—lasting well through winter. I have never tried it in what I considered a good place for keeping *any* variety. I got the scions for topping my trees from Mr. Meek. I believe he obtained his stock from Virginia, where he was acquainted with the original tree, which had not failed to give a crop of fruit more than once in twenty years. Comparing fruits by "good, very good, and best," Dr. Warder pronounced it

"best;" to my taste it is not so good as "Mother," or "Pryor's Red," or "W. W. Pearmain," when in perfection. Yet it is good enough to give satisfaction to anybody as an eating or cooking fruit, and to the producer it is bound to be one of the satisfactory varieties. Better than Wine Sap, than Rawles' Janette, grown this far north. A richer apple than Jonathan—not quite so sprightly nor juicy.

The specimens I sent to you last winter had been kept in open air, both too dry and warm for the best results. If they had been kept in close barrels, or in the ground, they would have been more juicy and crisp than they now are. I think of planting this spring fifty or one hundred trees of Grimes' Golden, as an earnest of what I think of "GRIMES' GOLDEN." Z. HOLLINGSWORTH.

Sandusky, Lee Co., Iowa.

P. S. We need a flood of light in this Western country upon Pomological matters, and a journal in the interest of the subject ought to excite a lively and universal attention.

REMARKS.—On the quality of this apple in contrast with that of Jonathan, we beg leave to differ in opinion with Dr. Hollingsworth. To our taste the "Golden" is *more* "juicy," and more "spicy" than Jonathan, and in this opinion we have the concurrence of Mr. James Smith, and other good judges in such matters of taste. The flesh of the "Golden" is not quite so crisp and tender as that of Jonathan.

For the Western Pomologist.

Lipping Pear Trees—Converting Dwarf into Standard.

This is recommended in order to cause dwarf pears to throw out roots above the union with the quince, as it is asserted that very few dwarf pears continue to pay unless gradually converted into standards by the above or some natural process. Glass is recommended, but I have found that the scales of the shad fish are much to be preferred—first, as more conveniently inserted; second, as not separating unnecessarily the bark; third, composed of plant food in a more soluble form; fourth, naturally of the size wanted—but as a substitute (and perhaps better still) I have used Mica, such as is necessarily replaced in stove doors, or rather windows. This contains a large proportion of potash. Cut the lip or incision as near the junction as possible, and insert the scale to prevent reunion.

D. S., *Port Penn, Del.*

THE London Gardeners' Magazine says that in the department of Vandoise (France) out of 60,000 acres of vines, 20,000 acres have been utterly ruined by what is called the "vine disease," and the loss in some districts has been even greater than this, so that many entire vineyards have been grubbed up, and the ground planted with other crops.

ENTOMOLOGIST

Curculio—Bark-lice.

C. V. Riley, State Entomologist of Missouri, read a paper before the Horticultural Society of that State, from which we take the following interesting extract:

Owing to the severe drouth of 1868, which was unfavorable to its successful transformations, that dreaded foe of the fruit-grower, the Plum Curculio, was scarce in the early part of the season, and our plum and peach trees set a fuller crop than they had done before for years; but the subsequent moist weather was favorable to the underground evolutions of this little pest, and the new brood appeared in great numbers about the end of June and beginning of July, when they did much damage to stone fruit and some damage to pip-fruit by the gougings which they made for food.

As stated in an essay read before the State meeting of our Illinois horticultural friends, I have discovered a little cannibal in the shape of a minute species of *Thrips*, which destroys vast numbers of the little turk's eggs; and let us hope, that by attacking the Curculio in its most vulnerable point, this *Thrips* may in the course of a few years reduce the numbers of the Curculio, as the ladybirds have done with the Colorado Potato Bug, or as the minute mite (*Acarus mali*) is known to have done with the common oyster-shell bark-louse of the apple.

The eggs of the apple-tree plant-louse, (*Aphis mali*) which last winter so thickly covered the twigs of the apple trees in many orchards, hatched and produced a prodigious number of lice as soon as the buds commenced to burst. In this immediate neighborhood they were soon swept away, however, by their cannibal foes, and by insectiverous birds, such as the warbler, etc.; but a physiological fact connected with this insect has been developed this year by Dr. E. S. Hull, of such importance that I cannot pass it over even in this brief report.—He has ascertained that we suffer from the injurious punctures of their little beaks long after the lice themselves have disappeared.

In fact he has proved to his own satisfaction that the so-called "scab" in apples, which prevailed to such au alarming extent last year, and rendered thousands and thousands of bushels valueless for market purposes, is actually caused by the punctures of these lice.

I said that the doctor had proved this matter "to his own satisfaction," because I believe that caution requires that we should not consider it an established fact until all objections to it can be dispelled. Personally I have made no observation on this matter, but the facts in the case all add weight to Dr. Hull's theory, if such it can be called.

Hitherto the cause of the "scab" on apples has been involved in mystery. It was supposed to have a fungoid origin; yet an examination will show that the scabby appearance is not caused by any live fungus, but by arrested growth of the cells which have become corky and cicactrized. The importance of this discovery of Dr. Hull's should it once be firmly established, cannot well be estimated; for when we have once ascertained the cause of a disease, it need scarcely exist auy longer. By destroying the lice we shall prevent scabby apples, and experience teaches that they can be destroyed by a good syringe of tobacco water.

We may expect, in this immediate vicinity, an almost total exemption from "scab" next year, for the apple trees are remarkably free from the minute thread like eggs of the plant-louse with which they were so thoroughly peppered a year ago.

Remedy for Cut Worms and Wire Worms.

I observe an inquiry by "W." for a remedy for wire worms in corn. Conversing with an old farmer a few years ago on this subject, he told me that he was in the habit of soaking his seed corn in strong brine—meat pickle would answer—and that corn thus treated was never injured by worms. I think he said he soaked his seed in the pickle about 24 hours. I expressed some apprehension that steeping corn in brine would injure the germinating principle, but he assured me that such was not the case, as it all came up well. He said he once farmed a place to the shares, and intended pursuing his plan with his seed corn, but his landlord, objected, thinking it would ruin the seed; he, however, after much persuasion consented that a portion of it should be thus treated, and the result was, the corn from the pickled seed came up well and grew on undisturbed by worms, while that from the dry seed was almost totally destroyed by them.

I remember of hearing my father tell once of some peach trees he once had in his yard which were badly injured by the borer. In order to destroy the worms he poured a quantity of fish pickle about the roots. The trees bore a plentiful crop of peaches, but the fruit was so salty as to be unfit for use. It would appear from this that the saline particles were taken up in the circulation of the tree, and thus disseminated to the fruit; and this may account for the efficacy of the salting process in the case of seed corn, the saline matter being taken into the plant and thus preventing the ravages of worms.—*Cor. Practical Farmer.*

Why Noxious Insects Increase Upon Us.

It is an old and very true remark that the various insects that afflict the gardener and fruit-grower are, year by year, becoming more numerous and destructive. One principal reason for this result is sufficiently obvious. The continual tendency of modern improvement is to concentrate vegetable gardens and fruit farms in certain peculiarly favorable localities, instead of scattering them evenly and uniformly over the whole country. Hence every injurious insect that troubles the gardener and the fruit grower has an abundant supply of such vegetation as forms a suitable nidus for its future offspring, close at hand, instead of having to search for it, with much labor, over an extensive surface of country. Such insects are, therefore, enabled by this means to increase and multiply with greater ease and greater rapidity. Upon precisely the same principle, if you scatter over the surface of a whole country the amount of shelled corn that is just sufficient to feed a certain gang of hogs, and compel them to seek it out and pick it up every day of the year, they will not thrive so well nor multiply so fast as if you feed out the very same amount of corn to them in a ten acre lot, day after day, for a whole year.—*Canada Farmer.*

HOW IT MUST BE DONE.—To be able successfully to check the insect scourge and eventually destroy the more noxious kinds, it is necessary to understand their habits—the moth that lays the eggs, where and when to look for them, when the transformations take place, etc., and the remedies to be applied, to destroy egg larva, pupa, or adult insect.

THE POMOLOGIST.

Professor of Pomology.

Nothing gives us more satisfaction than the announcement of Hon. James Mathews' appointment to the Professorship of Pomology in the Iowa State Agricultural College. This appointment, we regard as an earnest of the good sense of the Board of Controll in calling into the service of this State Institution, the assistance of a gentleman so eminently qualified for the position assigned to Mr. Mathews. We need not speak of his ability to perform well and satisfactorily the duties he assumes in accepting this appointment. It is sufficient to say, that no man either at home or abroad, is better qualified for the Professorship of Pomology.

We have never been very enthusiastic on the practicability of such institutions. Some fifteen years ago an Agricultural College was initiated in Pennsylvania. The State made large appropriations from the State Treasury to put the institution into opperation and to sustain it. But so far as we know (or we think any body else) its managers never published a sentence in regard to its workings to the value of one brass farthing to a single farmer in the State. In fact, the school and farm proved a total failure after having received State aid to the amount of nearly $400,000.

A few years later another enterprise of the kind was attempted in the State of New York. A fine tract of land consisting of some three hundred acres was purchased jointly, by State aid and donations from individuals. Costly buildings were devised and put in course of construction, but its days were few—the buildings even, were never finished. The advantages of both these institutions combined, after the expenditure of a half million of dollars or more, to the agricultural interest of their respective States, or to that of the country at large, were never worth the ink and paper used in the publication of their doings.

After all, we think good may result from such institutions of learning if properly managed. This can be done only by placing them under the management of practical, working men. To be useful agricultural education *must be* practical, and to make it so, schools for such purpose, must be to some considerable extent, under the supervision and management of intelligent, practical farmers and pomologists. And, when we see such men as Mr. Mathews called from the field to take an important position in the State Agricultural College, we have hopes of its success and usefulness. Let us have a school that shall teach practice with science, and thus qualify the student to go from the college to the farm and the orchard, and there put into successful operation the practical knowledge acquired in the school of arts. That's what we want, and nothing short of it if we would have our Iowa Farmers' College what it should be—an honor to the State and a benefit to the farmer.

GRAPES FOR MINNESOTA.—The Farmers Union, says the three best varieties of grapes to cultivate in this State as far as we know, are the Concord, Deleware, and Clinton. Of course there are numerous other varieties good, but taking all things into consideration probably the three we mention will suffice. The Deleware is the best fruit, and the Clinton the poorest.

APRIL AND MAY.—We feel constrained to let this number of the POMOLOGIST, which in the regular order of publication would be the April number, pass for both April and May. Since the latter part of March, and before the April number could be completed, business in the field has imperatively demanded our entire time for weeks. The current volume of the paper, however, will contain its full complement of pages—192. We shall add 16 pages to one or more future numbers before the close of the volume to make up the omission of an independent number for May or April; and, in the meantime, so gauge our out-door business as not to necessitate another omission of the kind, or tardiness in publication.

STATE FAIRS.—So far as ascertained State Fairs for 1870 will be held as follows:

Illinois	Decatur	Sept.———
Iowa	Keokuk	Sept. 13-16
Kansas	Fort Scott	Sept. 27-30
Minnesota	Winona	Sept. 20-23
Nebraska	Brownsville	Sept. 20-23
New York	Utica	Sept. 27-30
Ohio	Springfield	Sept. 13-16
Ontario (Provincial)	Toronto	Oct. 3-7
St. Louis Association	St. Louis	Oct. 3-7
Wisconsin	Milwaukee	Sept. 27-30
New England	Machester, N. H.	Sept. 6-9

MINNESOTA HORTICULTURAL SOCIETY.

ED. WESTERN POMOLOGIST:—I send you by to-day's mail a copy of the *Minncapolis Weekly Tribune* which contains a report of the proceedings of our State Horticultural Society. The officers for the present year are: Pres't S. J. Harris, La Crescent; Vice-Pres't, Chas. P. Cook, Garden City; Recording Sec'y, H. Lowater, Red Wing; Cor. Sec'y, J. W. Harkney, Faribault; Treas., Wyman Elliott, Minneapolis.

J. W. HARKNESS, *Cor. Sec'y.*

Faribault, Minn.

REMARKS.—We are sorry to say the "*Tribune*" failed to reach us.

WISCONSIN HORTICULTURAL SOCIETY.—The Wisconsin State Horticultural Society will hold a summer exhibition sometime during the strawberry season and when as many as possible of the summer flowers are in bloom.

MICHIGAN POMOLOGICAL SOCIETY.—At a recent meeting at Grand Rapids, Michigan, a State Pomological Society was organized. S. L. Fuller, Grand Rapids, was elected President A. T. Linderman, Secretary.

ILLINOIS HORTICULTURAL SOCIETY.—The next annual meeting of the Illinois State Horticultural Society will be held at Galesburg December next, 13th to 16th inclusive. The entire available means of the Society for the current year is $2,850.58.

ALTON (ILL.) HORTICULTURAL SOCIETY.—The officers of this Society are: Pres't, J. Huggins, Woodburn; Vice-Pres'ts, E. A. Riehl, S. B. Johnson; Sec'y, D. L. Hall; Treas., Capt. E. Hollister; Librarian, W. C. Flagg.

MINNESOTA HORTICULTURAL SOCIETY.—At the last annual meeting of the Minnesota State Horticultural Society, the opinion was expressed by members that not less than 15,000 bushels of apples were produced in the State in 1869. The Secretary was directed to prepare a circular to be sent to each member of the Society to ascertain their opinion as to the varieties of apples best adapted for cultivation in the State. The Society decided to meet in connection with the Summer Exhibition of the Hennepin County Society, to be held at Minneapolis, July 4.

KENTUCKY HORTICULTURAL SOCIETY.—The following gentlemen are officers of the Kentucky Horticultural Society for the current year:

President—Lawrence Young, Louisville.

Vice-Presidents—Sam'l Haycraft, Elizabethtown; J. L. Downer, Fairview; A. D. Webb, Bowling Green.

Corresponding Secretary—Dr. L. Stallard, Bowling Green.

Recording Secretary—Isaac P. Woodson, Woodsonville.

Treasurer—Jos. I. Youngdove, Bowling Green.

PROTECTON TO FRUIT-GROWERS.—The Legislature of Missouri has enacted a law for the protection of fruit-growers. The first section provides that any person who shall enter the orchard, vineyard, or garden of another, and maliciously mutilate the vines or plants, or take away therefrom tree, plant, or fruit, shall be liable to a fine not less than $10 or more than $100, or by imprisonment in the county jail for a period of not less than fifteen days, or by both such fine and imprisonment.

CALIFORNIA HORTICULTURE.—A statistical report upon agriculture and horticulture in California, presents the following figures on the horticultural condition of the State.

Grape, 22,402,580; apple trees, 2,182,228; peach, 795,894; pear, 348,736; plum, 176,334; cherry, 96,034; nectarine, 25,728; quince, 44,350; apricot, 61,114; fig, 40,819; lemon, 5,280; orange, 30,569; olive, 18,946; prune, 8,569; mulberry, 374,125; (most of them silk mulberry); almond, 32,400; English walnut, 25,888.

HORTICULTURAL PRIZES.—The Ontario (Canada) Fruit Growers' Association offer very liberal prizes for new fruits. To the originator of a new and valuable fruit a medal valued at $50. For the best winter seedling $30, and $20 for the best autumn apple.

ROOT PRUNING GRAPES.—F. R. Elliott says he "has long had reason to believe that one remedial agent toward excessive growth of wood, imperfect maturing bunches, and rot of the berry may be found in an annual or biennial root pruning. He would dig away the soil, and with a sharp spade cut the one, two or three main leading tap or vertical roots at about sixteen to eighteen inches below the surface."

MEDICAL PROPERTIES OF THE CELERY.—A correspondent of the Farmer says:—I have known many men, and women too, who from various causes had become so much affected with nervousness, that when they stretched out their hands they shook like an aspen leaf on a windy day—and by a daily moderate use of the blanched foot-stalks of celery leaves as a salad they became as strong and steady in the limbs as other people.

GROWING THE QUINCE.—An Ohio quince grower has been very successful for two years past with this fruit. His treatment of the trees is very simple: He spades the ground of his orchard every spring, and scatters a peck of coal ashes around each tree. He finds salt the best manure on the quince, and applies about one quart to the ground under each tree after the soil has been spaded, and another quart when the quinces are about half grown. Last year he sold about three hundred bushels of quinces from his own orchard of three-quarters of an acre,

Kansas Queen again.

Mr. Suel Foster, in the March No. of Pomologist, undertook to criticise the Kansas Queen apple, but upon what evidence does not appear very clear. The right of criticism we do not deny, but a critic should be well acquainted with his subject for his own interest as well as for the public good. The Kansas Queen is an apple Mr. Foster is entirely unacquainted with, except by the description we gave. We have no where said that the quality of the *fruit* was no better than the Ben Davis, or even compared it to that variety except in the characteristics of the *tree*, and in that respect it is nearly identical.

He says, "I deny the evidence that it was a seedling of the Ben Davis." It is very easy to deny but sometimes very hard to prove what we know, instead of proving what we do not know. Experience and observation have long since convinced us to believe the simple, faithful statements of disinterested, honest men.

When Mr. Atchinson stated that he planted the seed of two apples, one the Bellflower, and the other which he believes to have been the Ben Davis, procured from Missouri, where it is known to exist, and no other variety there like it, we should think it presumptive evidence at least that it might have been that variety; but when we in addition examine the *tree*, and find all its habits the same, we conclude Mr. Atkinson was not much mistaken.

It was not our object to prove that it was certainly a seedling from the Ben Davis, and therefore hardy, but we compared the tree to that variety because it appeared so nearly like it in all its habits, health, vigor, hardiness, form, productiveness and color. The Ben Davis *tree* being a well recognized standard of perfection.

It is not the duty of a critic to imagine that when a *tree* is like another variety, that the *quality of the fruit* is also alike, unless distinctly stated. Neither is one Fall apple more unworthy than another unless it is *known* to be its equal.

Therefore when Mr. Foster says, "I would not give two cents for ten thousand of the trees unless I was in the line of *humbugs* to sell the trees," he of course concludes the Kansas Queen is a humbug. We have no desire to be placed in that category at present, having spent almost a life time in exposing it.

We know nothing about his Warfield apple, but conclude when he plants fifty of the trees for his own use that he thinks it worthy.

So likewise when we re-graft standard varieties and change them to the Kansas Queen, we believe it superior to them, and worthy cultivation. We are well acquainted with the Dutchess of Oldenburg, and know it to be correct. It is not equal to the Kansas Queen in vigor, quality, or beauty, and will not command as high a price, and it does not ripen at the same season, but comes immediately after it. In fact we know no apple in its season its equal, and should be happy to find one to excel it. We believe we have tested the hardiness of over eight hundred varieties; I find very few as hardy, healthy and vigorous.

We have been rather too modest in introducing this apple, than otherwise, for we refused to have it made public while we had the drawing and description in our possession a year previous, for we were satisfied that it would improve by age, which it has already done, and will still continue for several years to come.

It is no humbug; it bears acquaintance, those who know it best think the most of it. Our best orchardists are top-grafting it on bearing trees. It has never been propagated; there is not a tree for sale. We top-grafted the first one year ago, and we are at it now. Humbug or no humbug we shall become the first victim, and have the consolation of being very soon in good, respectable company. J. Stayman, *Ast. Ed.*

N. B—There is a mistake in my receipt for grafting wax; there should be 5 libs. of rosin added.

Grafting the Grape—Queries.

Mark Miller, *Dear Sir*:—I have learned much from the article in your February No. on "Grafting the Grape," by Samuel Miller, but would like to have a few questions answered that I may be better posted.

Will Mr. Miller answer the following questions?

Will a hard wood variety "catch" in a soft wood variety or vice versa?

Is it necessary that the bark of the cion and stock should unite, or does he set the graft in the middle of the stock?

Is the cut made in the stock with a knife or saw? I should not think such a cut could be made with a knife without splitting the stock.

S. J. Allis.

North East, Pa., March 8, 1870.

P. S.—Will try and drop you an item now and then. S. J A.

Remarks.—Send along the "items."—They are the very spice of an Agricultural or Horticultural paper.

Correction.—In my article in the March number of the Pomologist, on "New Seedling Apples," you make me say, "if it was proved to be a seedling of the Ben Davis or any other hardy variety, it is *sufficient* evidence of its hardiness and productiveness." This is the very thing I did not want to say that you make me say. To insert the word *not* before sufficient, or, as most likely I wrote it, *insufficient*.

Suel Foster.

Nine Acres Only.

Mark Miller: *Dear Sir*:—I am taking twelve or fourteen agricultural and horticultural papers already, but want all the information I can get, as I have but nine acres of land to cultivate and *wish* to *make that yield* all it *can produce*. I now have it mostly in small fruit and apples. I raised last season over *two tons* of *grapes*, as poor as the land was, and as far north as we are. My vines are young, and I hope to do much better in 1870. I had eighteen varieties of apples and twenty-five of grapes on exhibition at our Ramsey county fair last fall, and took thirty first-premiums, here in Diplong? So you can see I strive to make my *papers* pay. Although most say they cannot afford to take papers, I *cannot* afford to be *without* any *information* I can get from them or any other source. So here goes $1 for the Western Pomologist.

Truman M. Smith,

St. Paul, Minn.

Grape-Growing at Pleasant Valley.

A correspondent of the *Country Gentleman*, writing from Hammondsport, N. Y., says:

"The depression in the grape interests here still continues. Vineyards and grape-lands are unsaleable at any price. Many are completely disheartened by the serious failures of the past three years. Some have lost nearly the whole of their crops by sending to irresponsible commission houses in New York, others by bad management in gathering and packing their fruit for market here have failed to obtain satisfactory returns. This state of affairs is eminently satisfactory to the wine companies, as it gives them low-priced grapes, out of which they make high-priced wines. This branch of the grape interest is growing rapidly. The reputation of our principal companies for producing a perfectly pure article of native wine and brandy is so well established that the purity of their wines is never questioned, and their sparkling wines find a demand to the full extent of their production. The most liberal estimates, give us last season not more than one-fourth of a crop, and still we find about five hundred tons shipped to New York and other markets, and about two hundred tons taken by the wine companies here. I judge that a full crop from the vines already set will give us, at the lowest estimate, three thousand tons of grapes. What shall we do with them? is frequently asked. I answer—those who have nice well ripened fruit nicely put up in small packages, the top like the bottom and the bottom like the top, every box alike, need not have any fears but that they will find a market for all they have, and those who will persist in putting their fruit up in a slovenly manner, in large packages, and then hauling it in a lumber wagon from eight to twelve miles, over rough roads, ought to lose it, and then get out of the business, and let their betters have the markets without their being overstocked with a lot of poor, green, dirty, unsaleable trash."

A Wethersfield, Conn., onion grower is reported as saying it formerly took 80 days' labor to plant, cultivate and harvest an acre of onions, but that by the improved implements, the work can be done with 50 days' labor.

For the Western Pomologist.

A Visit to Dr. Stayman's Fruit Orchard.

Having paid considerable attention to the cultivation of fruit for many years, I suppose it necessary to shorten in and trim out the tops of trees in proportion to their roots when transplanting; and to keep them afterwards healthy and symmetrical, and bring them into early bearing, to trim and shorten in and form the tops about three feet high, cutting out clean all crooked branches and small limbs, forming a handsome open tree, but I have always experienced a great difficulty in getting the trees to bear early, requiring from ten to twelve years of age from the graft, before bearing much, if any. I have just made a new discovery in visiting Dr. Stayman's fruit orchard, at Leavenworth, Kansas. I found his trees treated different from all others of my observation, and contrary to the general opinion of fruit growers. They were not pruned in the nursery, they were not shortened in or cut out when transplanted, and neither have they been pruned, shortened in, or cut out since growing in the orchards, but are let grow according to nature. From the statement of the doctor and others the trees were taken from the nursery when four years old, from root grafts, and are now three years transplanted, having bore heavy crops of fruit the last two years. Many have had their limbs broken with their weight of fruit, and are now very heavy set with fruit buds.

The trees have made a very rapid growth notwithstanding the heavy crops they bore. They have the heaviest bodies and largest tops I ever saw for trees of their age, and are perfectly healthy, which is a positive proof that I with others have made a great mistake in the cultivation of trees.

I consider it one of the greatest discoveries of the age. And to those wishing large healthy, early bearing and productive trees it will pay well to visit the Doctor's orchards, consisting of many hundred varieties. I look upon his success as a proof of his theory and principles. He has many trees trimmed and pruned on the old method, of the same varieties, standing side by side, scarcely producing any fruit, not as large and generally unhealthy. I saw many trees in the neighborhood, of the same age and varieties, trained and pruned differently, not as large in size, and not as healthy nor as productive, grafted in the same manner. His trees are planted close, twelve by twelve feet apart, one protecting the other

His theory and philosophy is very interesting, and I hope he will give it to the public. The size and quality of his apples I never saw equalled, and it is no wonder Kansas apples took the gold medal.*

CHARLES MCGREW, *Bloomington, Ill.*

* Can you send me samples of your apples by express, to show to the fruit-growers and horticulturists of our place.

REMARKS.—I have been acquainted with Mr. Charles McGrew for about twenty years. He had one of the best orchards in Knox county, Illinois, which I have often seen and admired. He has also planted two in McLean county. He is now satisfied that Kansas is a better fruit country than any east that he is acquainted with, and is going to locate here and go into fruit and stock raising. The above remarks, coming from such an experienced orchardist, of such extensive travel and observation, goes far in coroborating the truth of my theory, which at some more convenient time, I may present to the public. I shall try and send you some apples, but our best specimens have been disposed of. J. S.

For the Western Pomologist.

The Climate and Fruits of "Lower Egypt."

What! talk of a climate in extreme Southern Illinois, where two climates meet, and where the elements war with each other until they become exhausted, and well-nigh annihilated, like the Kilkenny cats, and their "fag ends" are left for the poor souls who are so unfortunate as to have their lots cast where the elements cross lances, like bold cavaliers! If you can only imagine that twenty-five changes can be rung on the weather in twenty-four hours, you are not only entitled to the credit of having a very vivid imagination, but can form some idea of the character of the thing called climate down here in "Egypt." Yesterday afternoon the sun was warm and pleasant, and we were encouraged in our hopes of settled weather. Last night we had an awful thunder storm, in which heaven's heaviest artillery seemed to be brought to bear upon the hills and valleys of Egypt; the rain came down in torrents, submerging everything below high water mark; and, this morning, the ground is covered with snow—the wind is blowing cold and raw from the South, from which we ought to expect better things; and, the sun, although shining brightly, seems to have no impression upon the white covering of the hills and valleys around us. Were this the first caper of the kind "cut up" here in the "forks" of the Mississippi and Ohio rivers, during the winter, by the "climates," we might feel disposed to view it in a different light. But the whole winter has been composed of just such freaks. Thunder, lightning, rain, snow, heat, and cold, all mingled together in the wildest confusion, bringing in their train, as the consequences of their mad career, coughs, colds, consumption, typhoid and bilious fevers, making a graveyard upon almost every section of this garden of Illinois. But, you will say that I am prejudiced. Well, if narrating facts is prejudice, you accuse me justly. But facts and figures will not lie. But let me say something of fruits down here.

Peaches are not a sure crop. Seedling trees are more safe, or sure to "hit" than budded fruit. That, perhaps, is to be attributed to the fact of its generally coming on a little later in the spring, and is not so apt to be affected by the late frosts. It is generally understood by the farmers that they cannot expect anything like a full crop of budded fruit oftener than once in four or five years, but the seedling trees are pretty sure to bring a crop, or part of a crop, every year. From that fact, therefore, it will be seen that peach raisers in this extreme southern portion of Illinois will be compelled to seek improved seedling fruit if they wish to compete with their neighbors a little north of them, on the edge of the prairies, in the markets. The climate seventy-five or one hundred miles north of this, in the region of Centralia, is undoubtedly much better than this for peaches. That point our people must concede. It being a little colder prevents the buds from pushing out as early in the spring as they do farther South, consequently they escape the frost. It is feared that the cold weather in February killed a large proportion of the budded fruit in this region. That question, however, can hardly be decided now. I am of the opinion that such fears are comparatively groundless. The cold weather we are having now will probably keep the fruit back, so that it will escape the frosts. If the peach crop is now safe, we have the prospect of a very abundant crop. The apple crop seldom wholly fails. The blossoms are timid about coming out until they are quite sure that Jack Frost will not nip them, consequently their very prudent conduct saves them a great deal of trouble. If the peaches would only be as cautious, they, too, would preserve their blushes for a longer period. I presume the list of apples that would succeed with you would do well in this region. The Early June, Red Astrachan, Early Harvest, Limber Twig, Northern Spy, Winesap, and other varieties, with which you are familiar, all do well here. The Buckingham is the favorite cooking apple here, and is largely shipped to Chicago, and other markets. There is an apple raised in this vicinity of which I will try to send you a specimen when the fruit ripens. The trees are on the farm of an old gentleman who informed me that he purchased the scions in Louisville, Kentucky, about thirty years ago, of a man who said they were cut from a tree in one of the Royal Gardens of France. It is a very large, beautiful, and excellent apple, sometimes weighing twenty-two (22) ounces. Some of the nurserymen in this vicinity have, I think, obtained control of a portion of the old man's trees for several years. I will say more about fruit anon.

S. LOMBARD.

Dongola, Union Co., Ill., March 15, '70.

Honey is a very favorite food and medicine with Bedouins in Northern Arabia.

For the Western Pomologist.

Will it Pay to Plant Vineyards?

The question is becoming seriously agitated, Will it pay to raise grapes except for private use? Will it pay as a business? The rapid increase of the number of vines, and the exceeding fruitfulness of the same, the rapid decline of the prices of grapes, naturally suggest the above inquiry,

Yes, it will pay to plant vineyards and raise grapes. Suppose the price of grapes should come down to an average of five cents per pound, and the yield of an acre should be placed at four tons, the yield per acre would be four hundred dollars. But regarding one-half of this an average yield, it gives us two hundred dollars as the product of an acre. The grape crop in California has been sold as low as one cent per pound, and yet we believe it is a profitable crop to raise. What is there in agricultural products that can make so great a return?

The reduction in the price of grapes will bring them within the reach of a vast multitude who have felt unable to use them at former rates, so that the consumption will be almost without limit, when it becomes emphatically the fruit of the people—as cheap as wheat, or any other class of food. We need not fear that the supply will exceed the demand.

We may or may not believe in making wine from grapes, or cider from apples; but it will be most extensively done when the extent of the grape crop warrants it. When we consider the exorbitant price of foreign wines, and the immense amount consumed in the United States, when we consider that wine can be manufactured at one dollar per gallon, and can be had without the suspicion of *adulteration* which attaches to all foreign and high-priced wines, it cannot be doubted that a largely increasing amount of the future grape crop will be consumed in making wine.

Allowing ten pounds of grapes for a gallon of wine, and at the above estimated yield' one acre would make eight hundred gallons of wine, which, *at one dollar per gallon, would be eight hundred dollars per acre.*

Will not American wine-making almost entirely drive the foreign and adulterated wines from the market?

When a vineyard is established and in bearing, it requires no more care than an acre of corn, and the outlay is comparatively small. The pruning can be done in autumn or winter, when time is not valuable. The kind of labor is not fatiguing, and is wonderfully adapted to aged and infirm men. We say, then, provide grapes in abundance. The people will pay for and eat them. J. A. N.

Flowers in Winter.—An old friend of ours, who has long since passed away to the better land, used to say that whenever he saw flowers blooming in winter, on the window sill of a farm house, he always felt disposed to call at the door and have a few words of friendly talk with the inmates, because he felt quite sure that they must be the right kind of people.—*Ex.*

Floral Decorations.

"Make your home beautiful—bring to it flowers;
Plant them around you to bud and to bloom;
Let them give life to your loneliest hours—
Let them bring life to enliven your gloom."

The outward beauty of home is in pleasant grounds, walks, shrubbery, flowers, trees, and whatsoever can render it agreeable to the eye, and suggest happy and virtuous thoughts to the mind. Of this kind of beauty we should have much about our houses A vine arbor, a flower-bed, a grass plat, a gravel walk, a shade tree, a pleasant yard are easily had, especially by farmers and villagers. No one with hands and health should be without such adornments to his home. These surroundings, clean and comfortable, brightened by flowers, music, sunlight and soft gentle words, are dreams of beauty that awaken something almost bestific in many a dreary cellar and lonely garret, which will never entirely fade from the memory, but will forever linger in the mind and heart as reminiscenses of happy hours at the "old homestead," and as oft recurring incentives to strive after a higher and holier life. There has been of late a marked increase in the use of flowers for social purposes. Every dinner party or dancing party must now be graced with these "stars of earth." At larger assemblies there is always a lavish display of flowers, as if it were designed to intoxicate the guests with delicious odors of innumerable blossoms. If we visit a lady, flowers must precede our coming; if we drive out with her, the odor of flowers must sweeten the pleasure. Superb presentation baskets and bouquets are seen in almost every parlor, and are the horticultural compliments of gentlemen to ladies Flowers are, of course, extensively used at weddings, but are employed more liberally at funerals. Five hundred dollars are not unfrequently expended in crosses and wreaths for those solemn occasions. Many of our churches of late years have employed flowers extensively on occasions of religious festivals. A child, even, can plant a flower seed or a shrub; and, if properly taught and encouraged, will be glad to engage in such pleasant labors. In the morning and evening hours, how much may be done to beautify one's home. If every week adds a little, and every year *more*, how *much* will be done in and about one's dwelling to give it an air of cheerful beauty. And of all beauty, that which is natural is most to be admired—such as grows, bears and blossoms. Give us, then, flowers to help out more fully our inner enjoyments of literary life and pleasure, and to raise our thoughts more fully from "nature up to nature's God." M O'Keefe.

Horticulture and the Ornamentation of Tables and Dishes.

On this subject the *American Agriculturist* throws out the following excellent suggestions:

"Few are aware how thoroughly the eye and palate are in sympathy, and in how great a measure the appetite is modified by the appearance of our food The confectioners are aware of this fact, and present their wares in tempting colors, and most of us can recollect seeing an otherwise good meal spoiled by being thrown upon the dishes and set upon a soiled table-cloth. All will admit that neatness and order are essential in the arrangements of a table; these are within the reach of even the poorest. Beyond these there is decoration, ornamentation of our tables for the sole purpose of pleasing the eye, and this is sometimes carried to a great extent. We were once several days a guest at a house where the ornamentation was painfully elaborate. where each day the butter was carved (not stamped) in some new form, and a pie was a work of art which it seemed a pity to destroy. Here the thing was overdone and oppressive, and our readers can make better use of their time than to devote it to anything elaborate. Still, we believe that those of moderate means and in the humbler spheres may with propriety give more attention to the appearance of their tables and the looks of the food upon them. the first great requisite of neatness being complied with. There is no table in the land, from the richest to the poorest. but what would be more attractive for a bunch of flowers These are decorations that are always in place, and may be set in vases of silver or crystal on the board of the millionaire, or occupy a cracked tumbler by the side of Pat's pork and potatoes. Besides flowers, green upon the table is always pleasing. In the spring half of the relish of cresses and salads is due to their fresh look, and the fact that they remind us that winter has gone and the season of growth has come. Every garden should have its patch of curled parsley, which will be found useful in ornamenting many dishes, its fine rich green giving an attractive appearance. Just notice the difference in the appearance of a supper table, where in one case the ragged remains of the roast or boiled of a previous dinner are set on, and where the same meat is nicely sliced and regularly laid upon a dish and surrounded by a green border of parsley. This kind of ornamentation is unpretending and always in good taste. A dish of spinach may be made to look really beautiful by having the surface nicely smoothed and then surrounded by a border of slices of hard boiled eggs. Those who wish to attempt something elaborate, can use carrots and beets, these are readily cut into stars, crescents, scrolls, etc , by bending up a strip of sheet tin into the desired shape and using it as a cutter. With these materials a very showy border may be placed around a platter. Of course the extent to which dishes may with good taste be ornamented, will depend upon the occasion and the surroundings. It should never be overdone.

Making Flower Seeds Grow.

Chas. D. Copeland, a horticulturist, furnishes us with the following hints, for the inexperienced in cultivating flowers. He says three things are indispensable for success in growing flowers:

1 The soil must be made mellow, and be pulverized as fine as possible, if naturally coarse and lumpy; then small seeds should be covered very thinly; not more than one-eighth of an inch, by sifting on fine earth, and pressing it down gently with a board or shingle.

2. The bed must be kept moist, but not very wet by sprinkling on water gently, toward evening, every dry day, until the plants begin to come up.

3. The ground should be shaded in some way, to prevent the hot sun from shining upon the bed, until the plants are up, and have acquired a little strength After that, they should enjoy the sunshine, more or less. And when about two inches high, they should be thinned out, by transplanting a part of them, insomuch, that they can grow stocky and strong; in which case, the blossoms will be earlier and more perfect. As a general rule, sow seed about the time farmers plant their corn. Still, they may be sown earlier, as tomatoes and cabbages are, under glass, or in boxes in the kitchen window, and thus be earlier in flowering

Winter-Blooming Pinks.

Here is a great addition to our house plants, blooming from October to May. To manage them, take cuttings in September or October, cutting through a joint to insure striking, insert them in pots of sandy loam, and put them into a cold frame. Before winter sets in, remove them to the green house or parlor window After the roots have formed, pot them off into single pots. By April, they will have made strong growth, when the middle shoot should be cut back, which will cause the plant to spread out at the base and become bushy.

This nipping back of the shoots is perhaps the most important part of their treatment, the neglect of which accounts for the scanty bloom seen in some cases. When they have made a new growth of an inch or so, they should be shifted to six-inch pots, the soil being composed of woods earth. sand, and old hot-bed manure. When all danger of frost is over, the pots should be plunged in the open garden. As the stems grow, break off all but four, and tie these up to stakes By September, flower buds will appear, when the pots should be lifted and allowed to stand a week or so in a half shaded place, prior to their removal to the house. They will then bloom for several months, and will repay all trouble by their fragrance and perpetual flowering.—*Rural American.*

Effects of Electricity on Wine.

Some months ago a wine house was struck by lightning in France. The electricity in its descent to the earth passed into the cellar and burst several of the wine casks. It was thought that the wine stored in the cellar was improved by the electrical visitation which led to some experiment, in the application of electricity to wine, and which are thus attended to by the *Boston Journal of Chemistry*.

M. Scouttetten was thus led to investigate the action of electricity upon wines, and he gives the results of his researches in a late number of *Comptes Randus*. His experiments were made on a large scale, and with various sources of electricy, and the conclusion to which he comes is, that electricity under whatever form applied (whether as a regular current, or a succession of discharges accompanied by sparks) improves wine, rendering it mellow and mature. As to the mode of action of this agent, he thinks that the bi-tartate of pottassa present in wine is decomposed; the potassa set free saturates the acids of the wine, and the free tartaric acid reacting upon the fatty matters present favors the formation of ethers which constitute the *bouquet* of the wine. Moreover, a small quantity of water is decomposed, and the oxygen thereof reacts upon some of the constituents of the wine, thus forming new compounds which are peculiar to old wines."

Grafting the Grape.

Jay Terrell, of Clevelaud, Ohio, gives through the *Ohio Farmer* the following advice on grafting the grape:

"Don't graft those grape vines yet, put the cions in the cellar or other cool place until the first flow of sap is past, or until the vine has well started. Then dig down beside the vine, cut off a root four inches below ground large enough to graft into, cut the graft with two or three eyes and cleft graft the same as you would in grafting apples and pears; wind it firmly with cotton twine, brace it up with a stick and fill up the hole, leaving the upper eye just above ground, and my word for it, nine out of ten thus grafted will make as good a growth as any vine planted out two years.

Don't put wax around the graft, as it forms a cup that will hold the sap, which sours and kills the vine; the bottom string is sufficient and will decay and loosen as the vine expands with its natural growth during the season. If, as is claimed by some, the stalk has an influence upon the graft, then you may next season layer the vine, and another year, when it has well formed roots, cut it off from the old root, thus leaving it permanently upon its own foundation.

Washington Territory boasts of an immense cranberry marsh, yielding one hundred thousand bushels in a single crop.

Fruits to the Manor Born.

It is genenerally supposed that fruit trees grow with the greatest vigor, and produce the best crops on the soil where they originated. There is some ground for this opinion, but it is not universally true.

If a quart of the best pear seed raised in Albany, were planted in Rochester or Cleveland, it would make no difference in the quality of the fruit. The character of the plant is determined before the seed germinates, not by the place in which it springs up. If we bring an orange from Florida and plaut the seeds in New Jersey, tney will become Florida oranges still. If we bring the seed of a choice grape from Canada, the product will resemble the grapes of that locality. And yet, it may be as well adapted to this climate and soil as to that.

Some persons are suspicious of foreign trees; yet experience shows that many of them are as healthy and productive as natives The Flemish Beauty, though a foreigner, is one of our hardiest pears; and so is Louise Bonne de Jersey. The Seckle pear has finer fruit at Rochester than at Philadelphia, its native place. The Concord grape succeeds better at the West and South than in its native New England. We will defy the Norwegian hills to show finer Norway Spruces than those which grow in this Yankee land.

Rural American.

Thinning Out Grapes.

Is the importance of thinning out the fruit of the vine duly considered by the majority of cultivators? I think not. From close observation, and even sad experience, the subject, in my opinion, calls for much more attention than is usually given. In young vines this is particularly the case. Such vigorous and hardy constituted varieties as the Concord may stand it, but even they will eventually suffer. This fault is not only to be found in the vineyards of the novice, but can be seen almost everywhere, in charge of those who know better. This, then, being admitted, the next question is: How shall it be remedied? Shall we prune it so much shorter, so as not to leave more wood than the vine can carry safely through, or leave more wood, and then thin out the bunches? The latter, in my opinion, will be the best; for, by the first plan, we get our fruit too much crowded, and throw too much force into the young canes for the following year's bearing. My impression is that when a vine is pruned to what would seem about right, the pinching out of every third bunch, at the first operation, pinching back, would be the method. I would leave but two bunches on each bearing shoot, and in some instances it is better to leave but one. We all know the forming of the seed of any plant is the heaviest tax on the plant. This being the case,do we not give considerable relief when we diminish this tax one-thrd? I think we would be safe in counting on having the same weight of fruit in the two bunches as if three are left. Some years ago we grew Concord bunches in this way, which the committee who were to test them would not admit to be that variety until they tested them. For marketing table grapes this is particularly practicable. For instance, let one man take Concords that will average three-fourths of a pound to the bunch, and another have them as usually grown, and my word for it, the large bunches will command nearly double the price, not only among the wealthy, but the masses.—*Grape Culturist.*

The tumble-dung beetle is identical with the *Scarabæus* or "sacred beetle" of the Egyptians.

DEFERRED ARTICLES.

If one wishes to learn selfishness, let him go apart, and stand by himself.

Honey Vinegar.—One pint of strained honey and two gallons of soft water. Let it stand in a moderately warm place. In three weeks it will be excellent vinegar.

Instinct indicates to bees and other insects their enemies, and the wrong these may intend, and shows them how they may be repulsed or evaded.

"If you listen by a hive about nine o'clock (on a summer evening), you will hear an oratorio sweeter than at Exeter Hall. Treble, tenor, and bass are blended in richest harmony. Sometimes the sound is like the distant hum of a great city, and sometimes it is like a peal of hallelujahs."—*Rev. Wm. C. Cotton.*

The entire economy of the hive seems to emanate exclusively from the two most prominent attributes of instinct—that of self-preservation, and that other more important axis of the vast wheel of creation, the secured perpetuation of the kind by the conservative and absorbing love of the off-spring.—*Shuckard.*

Horticulture in Common Schools.—The *Country Gentleman* says the culture of flowers, the planting of ornamental trees, with brief instructions as to their growth, might be introduced into every school as a recreative study—if the teachers have the taste and knowledge necessary. It gives an instance where a teacher, on his own motion, interested his pupils in the culture of ornamental plants, with the happiest results.

Vegetables in Cellars.—A gentleman of Watertown, Mass., impressed with the conviction that much sickness in families results from storing vegetables in cellars under dwellings, addressed an inquiry to the State Board of Health, prominent members of the medical profession, on the subject. The response was to the effect that decaying vegetable matter throws off exhalations of a poisonous character, which taint the air in the dwelling; that these invite attacks of an epidemic character, and one especially productive of fevers. The practice, therefore, of storing the produce of the farm or garden in cellars, is always attended with danger to the occupants of the dwelling, and ought not to be continued, as portions of stored vegetables are most certain to undergo the process of decomposition during our long winters.

Artificial Pasturage for Honey.—R. Miller, of Rochelle, Ill., gives the American Bee Journal his experience in artificial pasturage for bees:

"My apiary contains forty-five stands of bees, old and young, and I have taken two thousand three hundred and thirty-nine pounds of surplus honey. All this is the product of bees gathering on *artificial pasture*. I live on a very new place, six miles from any timber, and there is no white clover except what I have sown. I have sown white clover, alsike, and melilot. Of all these the melilot produces the most honey, and the best. My bees gathered honey from it this fall up to the fifth of October. I sowed three acres for my bees, and also some buckwheat.

The above stated yield was the product entirely of artificial pasturage. My bees are all hybrids, and my honey was all box honey. Of my two best stands, No. 5 gave one hundred and seventeen pounds, and No. 26 gave one hundred and eleven pounds. This, I think, is doing pretty well for a new beginner. My hives are all numbered, the honey all weighed, and each hive credited with the amount taken from it."

Russia has appointed a beet sugar commission.

A thorn in the bush is worth two in the hand.

Celery and peaches have appeared in the Boston market from California.

Why are plum stones like mile stones? They are never found in pairs.

A beet may exceed the growth of a cabbage, but the cabbage will eventually get a *head*.

How many apples did our first parents eat in the Garden of Eden? Eve 8, and Adam two.

Have the courage to discharge a debt while you have money in your pocket.

Modesty promotes worth, but conceals it, just as leaves aid in the growth of fruit, and hide it from view.

History informs us that our first parents lived on fruit, and you never heard of their sending out for a doctor.

A milk weed grows wild in California, the fibre of which is as strong as Manilla hemp, and as fine as linen. It is believed that it can be utilized.

Washington Territory boasts of an immense cranberry marsh, yielding one hundred thousand bushels in a single crop.

Self dependence, which generates all that is grand in plan and power, is the great source of strength.

Fruit-growers in many sections of New Hampshire are offering a reward of half a dollar for every partridge killed in or near their orchards, the birds being thought to destroy apple buds very extensively.

Man must have occupation or be miserable—toil is the price of sleep and appetite—of health and enjoyment. The very necessity that overcomes our natural sloth is a blessing

The perfume of a thousand roses soon dies, but the pain caused by one of their thorns remains long after. A saddened remembrance in the midst of mirth is like that thorn among roses.

A Wethersfield, Conn., onion grower is reported as saying it formerly took 80 days' labor to plant, cultivate and harvest an acre of onions, but that by improved implements, the work can be better done with 50 days' labor.

The Fruit Committee of the Ohio Horticultural Society highly commended specimens of the Vicar of Winkfield pear exhibited at their meeting at Dayton on the 2d of March. The fruit was said to be in excellent condition, and the flesh firm and luscious.

At the late convention of the fruit growers of Western Michigan, the following pears were recommended for cultivation in that region:—Bartlett, Bloodgood, Seckel, Flemish Beauty, Vicar of Winkfield, Sheldon, Rowell, Lawrence, and Clapp's Favorite.

An English writer thinks the American early potatoes will come to an end ere long, for as each new variety is claimed to ripen about ten days earlier than any other, the time between planting and digging will soon be used up.

It is certain that 16,000 bees in one hive will collect more honey and wax, than the same number lodged in two different hives could possibly do.

A Big Mushroom.—We hear of a big mushroom which grew to maturity, in Princeton, Ills., in a single night, measured thirty-four inches in circumference, ten inches in height, and weighed three pounds and ten ounces.

Foolish Practices.—It is foolish to have a large orchard with every other tree dead from borers and your own shiftless cultivation of it; to set out an orchard, and turn cattle in to prune it; to buy poor trees, because they are cheap; to be so eminently selfish that you will set out trees, because your life is not insured to last as theirs.

Ham Toast.—Chop some lean ham fine, put it in a pan, with a little pepper, a lump of butter, and two eggs beaten; when well warmed, spread it on hot buttered toast, and serve.

Honey Vinegar.—One pint of strained honey and two gallons of soft water. Let it stand in a moderately warm place. In three weeks it will be excellent vinegar.

Asparagus Pickles.—Fill your jar with asparagus, make a strong brine, pour in on hot. When you wish to use them for pickles, take them out and boil them done; then cover them with vinegar. They can also be used for sauce by boiling them tender, and then butter and season with salt and pepper.

Cherry Bread.—Cut fresh bread into slices an inch thick, spread in a float dish, and pour stewed cherries over. Any fruit with plenty of syrup will do as well.

Bacon.—If you want good, flavored bacon *give it air, and keep it dry*. A dry atmosphere is a *sine qua non* to good bacon. The prime necessity of fire under meat is the drying process, and *not* the smoke. Bacon hung up in a dark, dry place is not likely to be disturbed by flies. When dampness is noticed on the meat, it is to be driven out by fire with a sprinkling of brimstone in it. This will drive out the flies and save the bacon.

Japanese Rice Glue.—A cement, very elegant and strong, is made by the Japanese out of rice. They simply boil it in water, and work it into a fine paste. It is said to be very beautiful, snow white, almost transparent, and that papers pasted together with it will separate in their own substances before the glue will give away. This article is very useful to ladies when making nice white paper boxes and other articles for ornamental purposes.

Pie-Plant Dumplings.—Strip the plant and cut it into pieces of three or four inches long; make a plain crust, and roll enough of the pieces in the crust to make a dumpling about as large as an apple would make. When you have as many dumplings as you think will suffice for your family, drop them into a pot of hot water, and boil them about a half hour, when they are ready for the table. For a sauce to serve with them, use one cup of butter, one cup of molasses, and a cup and a half of sugar, boiled together. If boiled long enough it will be thick and rich enough without anything else added, but if in a hurry and cannot wait for much boiling, thicken with a tea-spoonful of flour mixed with sweet cream stirred into it.

Fruit lands in the vicinity of St. Joseph and Benton Harbor, Mich., are sold at from three to five hundred dollars per acre, and some have been held as high as $1000.

Florida expects a pine-apple crop worth $200,000 this season.

Modern researches has established the fact that in the winter vegetable life is not suspended, as has been generally supposed.

The time is fast coming when landed proprietors will be esteemed for the condition of their acres rather than for their extent of territory.

The great means of destroying most kinds of weeds is to keep the leaves and stems from appearing, by frequent mowings or cuttings.

The *Country Gentleman* says: "After many years' trial, we find nothing so cheap, simple, convenient, and durable, as strips of tin for permanent labels on bearing fruit trees. To write the name, lay the label on a table or board, and make the letters with the point of an awl or of a file ground to a stout point, pressing firmly while writing.

One of the Sandwich Islands claims to have the largest orchard in the world, some of the trees bearing fifty barrels of apples.

The practical lady horticulturist, by out-door exercise in the garden will require very little medicine for strengthening a delicate constitution.

Many plants could not be perpetuated but for the agency of insects, and especially of bees; and it is remarkable that it is chiefly those which acquire the aid of this intervention that have a nectarium and secrete honey.

A writer in the *American Farmer* says that he has no hesitation in saying, from his experience in the matter, that the American thorn, from its hardiness and perfect adaptability to the purposes required, must become the hedge plant for American farmers.

Owing to the unusual mild winter, a heavier grape crop is anticipated for the next season in California, than has ever before been known. It is said that more vines will be planted in that State this year, than in any previous three years combined.

A correspondent says that everybody will be disappointed who thinks that rich, plump, juicy pears can be obtained by digging a hole in any soil that comes handy, jamming in a tree just taken from a rich nursery, and hastily crowding back the earth.

It is not Americans or even Canadians only that are growing new seedling hybrid grapes by using our native Fox grape as one of the parents, but our English friends are at the work, and last year Mr Pearson brought out several new sorts, one of which, named M. de Lesseps, is said to possess good traits.

A correspondent in the *Country Gentleman* says that he purchased a small quantity of the seed of the Colossal Asparagus last spring, sowed it in light and moderately good soil, and gave it ordinary cultivation, wishing to ascertain if it was really a new kind. Upon examining the roots, very recently, he found the roots as fully as large as those of the ordinary variety grown two years ago. He believes the Colossal to be a new and very valuable variety.

Bees Dying.—An Eastern paper says that bees are dying in Massachusetts for want of food. The last summer was so unfavorable that sufficient honey was not gathered to last them through the winter. In some instances the keepers have not been able to save more than one or two hives out of twenty.

For the Western Pomologist.

Fruit Growing in Minnesota — Seedling Apples.

A few items from Minnesota may not be uninteresting to some of your readers; especially to those who think fruit-growing a hazardous business in Iowa. A history of our trials, disasters, final success, and future hopes may serve to buoy them up, to urge them on to greater efforts in future. In the start we tried old favorite varieties, Eastern and Southern modes of culture—nearly all failed, whether hardy or not, as the culture was at fault, and so great that not one tree in five hundred now stands that was planted prior to 1863, of old named varieties, and a far less proportion of seedlings. All that planted seeds lost the most of them, whilst the majority lost all. The ruin was so great that the majority lost hope for a while, until the more persevering solved the problem, were raising fruit, and thereby roused the faltering, till now we are all moving on at a strong pace, in full faith of ultimate plenty of good fruit the year round. But one great draw-back with many new beginners is, they know it all, and will do it just as it is done in the East; and ultimately find they are of the class that can only learn in a dear school. Eastern and Southern culture won't do here, and the sooner learned the better—our soil and climate differs from all other parts of the world, and consequently a different mode of culture. And to an extent sufficient to ensure success to an encouraging degree, a mode of culture and a list of varieties have been searched out, so that all may grow a full home supply for the year round, if they will but try, and have ground on which they can grow wheat and corn. Though it is not all who can grow the common apple, all can grow the crab, which is the best for all culinary purposes, and nearly of medium sized apples, many of fair quality for eating from hand, and in season nearly the entire year—the intermediate being filled up with small fruits. Small fruits all do well here, though grapes require winter covering, but pay well, as we get a good crop every year, and retain health and vigor of the vine. Any variety not later than the Isabella will pay here, though it does not ripen up fully every year. The pear is not yet sufficiently tested here, yet I don't despair of success, am still trying with a prospect somewhat flattering. The peach prospect is not so flattering as might be hoped, yet the effort is not abandoned, as I have found some almost perfectly hardy, having stood unharmed through four winters, but died in the fifth. But had they been mulched, as I now treat my apple trees, I think they would have gone through safe. But those few were a few out of hundreds, and against I try as many peach pits as I did apple seeds I may succeed in getting a perfectly hardy tree. Of the first twelve years planting of apple seeds, I have not twenty remaining, though at one time I planted a bushel, all put to the test of hardiness, and one only remains; another time a quart, and three remain; and no season less than a thousand seeds; but, for the last four years, I have planted only of my own raising of seeds, and the results are quite different, the majority bid fair to succeed, thus making the future more hopeful.

PETER M. GIDEON,

Excelsior, Minn., March 10, 1870.

For the Western Pomologist.

The Western Slope—Its Fruits and Soil.

That our upland soil, which is composed of the bluff or drift deposit, is especially adapted to the healthy growth of trees, none can doubt who are acquainted with the nature and habits of the tree, and make an examination of the soil and compare it with soils of other sections that are known to be most favorable to fruit growing, also from observing the comparative freedom from disease of all varieties of trees, vines, and plants now growing upon it. This drift soil on the higher bluffs near the river, extends to a depth of two hundred feet, gradually lessening in depth as we go eastward to the head waters of the streams emptying into the Missouri.

This soil is uniform in color and texture from the top to the bottom, excepting the surface soil which is darker, caused by the decaying vegetation. On the higher and steeper points where most exposed to washing, there is no surface soil, as we usually use the term; still, even where so steep that it is impossible with ordinary finger and toe-nails to climb, the grass grows abundantly, which conclusively proves that there is a fair quantity of nutrition in this drift, also that it is far better underdrained naturally than it is possible for wearing to do it.

This deposit is of a yellowish ash color, and in texture is highly comminuted, composed of a perfect mixture of clay and very fine sand, in such proportions that it is neither adhesive or leachy. It is easily dug with the spade, while strange it is, wells dug fifty or seventy-five feet are not walled up only so far as the water rises, and the wells so made are reliable for a life time. In such soil the roots of trees *can* and *do luxuriate*. No fear of cold or wet feet, and down, down they may go, still finding appropriate nourishment. Concretions of lime are found in the soil varying in size from a Tom Thumb pea to a well-fed grasshopper, (by the way, if you are ignorant in regard to the size of this excruciatingly, interesting, entomological specimen, enquire of a "Sloper,") while sand and gravel banks and limestone ledges are occasionally found.

The adaptability of the soil for a healthy development of the roots is partly counterbalanced by the incongeniality of the climate above it. We have very high winds, drying in their nature, which it would be to our profit, as well as it is our duty, to lessen, as far as lies in our power, by planting timber and screens. This is all we need to have to be possessed of the finest fruit growing section in the United States. I have not seen or heard of a case of pear blight the past season in this vicinity; this I think is due to the favorable soil; the roots of the standard pear, especially, are prone to run downward, and where they meet with saturated soil, it has a tendency to cause the tree to become diseased, and then is more liable to be attacked by the blight.

If we can keep our trees healthy, is not the horticulturist on the highway to happiness and wealth? Yes, and better yet, *health*. Grape rot was almost unknown here the past season, except where the vines and fruit were allowed or rather forced to lay upon the ground. We want men to come and settle among us who are alive to the importance of planting timber for their own profit and the benefit of others. We can figure up the profit for you if you wish, and in figures that *won't lie*, but that has often heretofore been done. We don't want men to come here who are anxious to strip off what little timber we now have; we have plenty of such already. But I have forgotten my subject. One question I ask to be answered by those who have a reason for the faith that is within them. In selecting pear seedlings, to plant in orchards, is there any more chance of obtaining good fruit from smooth limbed trees than from thorny ones? Is there any difference in value or hardiness, of light or dark barked pear trees? I have just been looking over a lot of four hundred, two-year pear seedlings, and I was astonished at the different appearance in color and habit of growth; no two were alike; there is as much difference as there is in the same number of persons. Well, *laugh* if you want to. People call me crazy on the tree question but I don't believe it. Still I know that most crazy people believe themselves sane.

I suppose, Mr. Pomologist, that you will be glad to hear that we have had delightful weather for the past six weeks—not a rain or a snow; have not had over ten inches of snow in the aggregate this winter. Trees mostly in good condition, yet the tops of peaches and some plums considerably killed back; the injury was done by the October freeze; a few apples bark burst.

H. C. R.

Council Bluffs.

FOREIGN GRAPES.—Gen. Capron, the Commissioner of Agriculture, says in the last Agricultural Report:

"Vast sums of money, and much valuable time and labor have been expended in the endeavor to make the foreign grape a success, but without exception it has proved a failure in open air culture. These failures, however, have had a salutary effect in directing attention to the improvement of our indigenous species, and the progress of amelioration is both marked and rapid. The fact will be learned, sooner or later, that east of the range of the Rocky mountains, no climate has yet been found suitable for the continued healthy growth of the foreign grape. On the Pacific coast the plant seems to find a perfectly congenial climate."

Agriculturists in California are turning their attention to the raising of opium.

Grape Growing in Champagne.

Champaigne is a district of France, where the celebrated wine of that name is made. It is quite usual to start vineyards in the fall or early winter, rather than in the spring. The young plant is cut back to a single eye, sometimes two, and the soil very thoroughly stirred.

The vine may bear a little the third year, but comes on along the fourth and fifth years into full bearing.

The vine is trained low, pruned very closely and trained to small stakes.

The grapes ripen early and the vintage is hastened for sparkling wines, and usually before October.

There is a close summer pruning and pinching of summer growth.

The picking is done by women, and the decayed or defective berries carefully excluded. They are also usually assorted and the ripest and best kept by themselves.

The vineyards are renewed, very often by layers between the original rows, so that after a vineyard has age, its regularity of lines has disappeared, and it is dotted here, there, and everywhere with the new vines started from the old stalks by layers, until the number of vines planted on an acre of the ground will be something enormous, and as high as 15,000 to 20,000 in some instances. Generally the culture in Champaigne in almost all respects resembles that of Burgundy.

The crop for the best wine is gathered and selected with the utmost care.

For the brands of renown only grapes of a certain quality and kind used, and these of species that have had the test and approval of years. Every grape not perfectly ripened is removed—every berry touched even by the frost cut out.

Great care is observed in handling the fruit after picking to avoid injuring it, and to keep it unexposed from the sun.

When the grapes are brought to the wine house they are set in the shade and in a cool place. They are placed on the press with great care and the bunches often carefully arranged.

The must is not casked immediately, but is left to stand for from six to fifteen hours, and when it begins to ferment is transferred at once to the cask.

The grapes are passed with the utmost haste through the wine-press to avoid all coloring to the wine which would follow if any fermentation occurred while in the berry. The barrels or vats into which the new wine is placed are cleaned with the utmost care, and thoroughly sulphured. Then the wine ferments slowly through the autumn and early days of winter.

The latter part of December, when fermentation has ceased, the wine is carefully racked out. The wine maker selects a frosty day for this operation and shuns a damp or wet one.

About a month later it is again racked and fined with isinglass.

There is a difference in the subsequent treatment in different cellars. Some only fine it once after the second racking, and then bottle at once; others rack the wine twice, and fine it carefully at each racking. The most particular manufacturers, and with their best wine, give it three rackings and two finings, and the benefit of this treatment is frequently plainly perceived in its subsequent management when bottled.

Gelatine is sometimes used, and tannin as a prevention against diseases of the wine, but not universally.

The bottling commences at various times. In some cellars, as early as the latter part of January; some in February, though it is considered that there is extra risk in this early bottling, but the major part is bottled in March and April.

For the Western Pomologist.

The Loss of the Queen Bee.

The following question was received from A. M———, of Polk county: "I see that you write for the POMOLOGIST, will you please give some information on the loss of the queen bee? I have several colonies which, I fear, are queenless."

REPLY.—The queen bee is frequently lost by accident or deformity, and unless remedied in time, causes the loss of the entire colony. If a stock of bees in the spring does not carry large and plump pellets of bee-bread, whilst other colonies are very industrious, the bee-keeper may reasonably suspect that that colony is queenless. Examine the litter on the bottom-board or in front of the entrance for eggs or a few immature bees, if either are found, it shows that the hive has a fertile queen; if, however, neither eggs nor imperfect bees are found, and the bees are in a common hive, turn it upside down and look between the combs for brood; if not seen at first, drive the bees back with smoke and break out a piece of comb from near the center of the hive, and if it contains compact brood in worker-cells, all further search would be useless.

Signs indicating the Loss of the Queen.—When the loss of the queen is ascertained by the workers, their agitation will soon give evidence of the fact The bees rush from one part of the hive to another; out of their hive and back again; running about the entrance in great haste, and up and down on the sides of the hive as if in search of something lost. This commotion is noticeable from one to three days, usually in the morning when other bees are quiet. After becoming fully satisfied of their loss, they settle down quietly and sometimes begin to work, yet there is a dissatisfied appearance noticeable; when returning from the field, instead of entering in haste, as usual, they are slow in their movements, lingering on the alighting-board as if in a quandary whether to enter or not; the drones are tolerated while other colonies have killed or excluded them; the number of bees are reduced by continual losses, and if the proper remedy is not applied by the bee-keeper, the existence of such a colony will soon be ended by robber-bees or the moths. Whether or not a colony is queenless, can be ascertained with certainty by the use of the movable-comb hive; in it the condition of the colony may be known at any time by actual examination of every comb in the hive.

Remedies.—If the loss of the queen is detected either in early spring or late in the fall, when drones are not present, and a fertile queen cannot be given them, it would be useless to provide them with brood to rear a queen, as such a queen could not be fecundated, and would remain barren. To save the bees, unite them with another colony and preserve the comb. If the swarm is in a hive, provided with comb containing brood, (which is the case where the queen gets killed by accident) the loss of the queen will be remedied by the workers without any addition from the bee-keeper, provided drones are present; if no brood can be found, a comb containing brood in worker-comb should be inserted, or if possible, with a perfect queen-cell. To obtain a queen-cell, go to any stock that has cast a swarm not over six days previous, and with a sharp knife cut out a piece of comb containing a sealed or capped queen-cell, take it to the queenless swarm, drive the bees back with smoke; near the middle cut out a piece of comb, in size and shape like the piece containing the queen-cell, insert it instead, and carefully return the hive to its stand.

The causes of the loss of the queen will be given in a future communication.

E. KRETCHMER, *Red Oak Junction, Iowa.*

HOW TO CLEANSE MOULDY COMB.—More or less mouldy comb is found in bee hives in the spring, especially if wintered in a cellar. At least such has been our experience. Henry Croit, of Lake, Ohio, thus writes to the *American Bee Journal* his method of cleansing mouldy comb:

"A mouldy comb, if not rotten, may readily be cleansed in the following simple manner: First, hang it up till it is thoroughly dry; then brush off as much of the mould as possible without cutting or mutilating the cells. When so prepared, put it right into the cluster of a strong stock of bees, in the working season, and in the course of a week or so the bees will usually cleanse and renovate it so completely that, to all appearance, its former mouldiness will be gone. If, however, a portion of the comb should contain bee-bread that has become hardened and turned white in the cells, this the bees will sometimes fail to cleanse, or will occasionally cut away the entire cells instead In either case of failure, such portions should be cut out and the vacancy filled with worker comb, to prevent the bees from building drone cells instead.

"By the above method I have had some combs cleansed that had been literally covered over with mould For the want of a better place I have, for the last fifteen years, usually wintered some of my bees in a damp cellar; hence my experience with mouldy combs."

COMB GUIDES.—The *American Bee Journal* for March, publishes the following as evidence that the patent on the bevel edge comb guides is worthless, on the ground that the same device was known and described many years ago:

Extract from "Observations on Bees," by John Hunter, Esq., a paper read before the Royal Society of London, Feb. 23, 1792, and published in the Philosophical Transactions, vol. 82, page 128

"As one perpendicular comb of the whole length and height of the hive, in the center, dividing it into two, is the best position for exposing their operations, it is necessary to give them a lead or direction to form it so; therefore it is proper to make a ridge along the top, from end to end, in the center, between the two sides, for they like to begin their work from an eminence; if we wish to have them transverse or oblique it would only be necessary to make transverse or oblique ridges in the hive."

POCKET MONEY AND BEES – Mrs R C. A., of Ill., has solved the woman question to *her* satisfaction. She finds that since she has had money in her pocket which she can spend as she pleases there has been no clouds bigger than an old fashioned quarter of a dollar in the matrimonial sky. No doubt this state of things would bring sunlight to many a clouded heart. Mrs. A. is a farmer's wife, and makes her pocket money by keeping bees, selling both honey and swarms. She purchased one swarm ten years ago, patiently studied the ways of the insects, and learned how to manage them. Every year, excepting one, she has realized a good profit from them. In the spring of 1869 she had nine old swarms, from which she sold five new swarms for ten dollars each, and she has now twenty-five good strong colonies. Last year they had 680 pounds of honey, besides the hive honey of twenty-one new swarms, averaging fifty pounds to a hive. Let other farmers' wives go and do likewise.—*N. Y. Tribune*

BEES IN UTAH.—A few colonies were taken to Salt Lake City, by early immigrants. They are reported prosperous and worth $40 to $50 per swarm. The well watered fields, the orchards and gardens of that vicinity would, doubtless, afford ample forage for several thousand colonies.

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BLAIR BROS., Lee's Summit Nurseries, Ornamental Roses, Bulbs; Lee's Summit, Jackson Co., Mo.

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CAMPBELL, GEO. W., Grape Vines, Small Fruits, and Greenhouse Plants, Delaware, Ohio.

CROWELL, H. F., Fairview Avenue Nurseries, Hammonton, N. J.

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CONGDON, J. Z., General Nursery and Experimental Garden, Onarga, Ills.

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ENNIS, DR. JOHN E. & Co., Gen'l Nursery, Hedge and Forest Tree Seeds, Lyons, Iowa.

ELLSWORTH, LEWIS & CO., DuPage Co. Nurseries, Naperville, Illinois.

FROST, E. C., Highland Nurseries; established in 1842; Watkins, New York.

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PATTERSON, CHARLES, Hedge Plants and Apple Seedlings, Kirksville, Mo.

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PECK, D. E. & CO., Nurserymen, Marengo, McHenry Co., Illinois.

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Vol. I. DES MOINES, IOWA; LEAVENWORTH, KANSAS, JUNE, 1870. No. 6.

MARK MILLER,
Editor and Proprietor, - - Des Moines,

J. STAYMAN, Leavenworth, Kansas.

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Winter Siberian Crabs.

Mr. C. Andrews of Marengo, Ill., will accept our thanks for specimens of his winter Siberian Crab apples, received in March. They were in a good state of preservation, and for ought we could discover not long since, would have kept till June, if our patience had not succumbed to our appetite. Mr. Andrews is making the propagation of the crab apple a specialty in his business, and is introducing many new varieties to the pomological world. He says, (and we think truthfully): "We have in the Siberian species of the apple congeries of fruits far more universally adapted to the great diversity of climate and conditions in our country and on the globe than in any other species of the ligneous orders of fruits."

For the Western Pomologist.

Seedling Apples.

MESSRS. EDITORS:—I think some explanation is due from me in regard to what Mr. Stayman says of the Kansas Queen. Of course I knew nothing of the apple. I was only speaking of what Mr. Stayman said of it; and as I thought was placing too much dependence on the parent variety of its origin. What I wish to say is this: We ought not to depend on seedling varieties until they have been tried, whether they come from the North or South—whether from the Ben Davis, or any other variety. For Mr. Stayman said: "It being a seedling of the Ben Davis is sufficient guaranty," etc. The Red June came from Carolina. I would not send to Carolina for hardy varieties; although that has proved quite hardy. Hence it follows that a variety having originated in the South does not necessarily make it unsuited for our climate. But a variety having originated in the North, and having stood several winters there, is a good step towards proving its hardiness.

I would not advise putting much dependance on the seeds of the best varieties of apples we have. To get new varieties of apples, it takes thousands, and perhaps many thousands of seedlings, to make a slight improvement on the very many varieties we now have. Yet I would not discourage the effort to improve. He who will get a new variety, a tree equal to the Ben Davis or Duchess of Oldenberg, and fruit equal to Grimes' Golden or Jonathan, and will keep sound into April, May and June, will add a very valuable thing to our list, and will be remembered with gratitude.

SUEL FOSTER, *Muscatine.*

Fruit in Nebraska.

ED. POMOLOGIST:—I am much pleased with the WESTERN POMOLOGIST. It fills the bill exactly—is just what we want—a paper that is of us of the West. Our soil and climate differs so widely from the eastern and middle States, that what will do well there frequently fails here, and what fails there often proves a success here.

You will see by referring to the map, that Pawnee City, Neb., is just north of the 40th degree north, is in the valley of the great Nemaha river, also the Missouri river. I have lived here nine years. In this time I have raised a fine orchard of several hundred trees, that are as healthy and as fine as is possible to grow trees any where. I shall have a fine crop of apples and peaches this year; peaches have never killed here during my residence. I have had three crops in succession. And, by the way, we are much in need of a good nursery here. The nearest nursery to us is thirty-five miles to the east, and none to the west of us in this State, and we are seventy-five miles east of the border.

Ere another year is ushered in we will have a railroad communication with the east, which will give us quite an aged appearance.

Land can be had here now from five to ten dollars per acre for unimproved, and from ten to twenty for improved.

J. W. H., *Pawnee City, Neb.*

The European Larch.

ED. POMOLOGIST.—I notice in the address of President Mathews, the recommendation of the European Larch as a timber suitable to be grown in your vicinity, and presume it would also do well here. Our soil is a dark colored, sandy loam. Latitude 45°.

Can you inform me where I can obtain seed; also, how late in the season it will do plant it? Sent to James Vick, Rochester, N. Y., for seed, but the money was returned.

N. A. VAN METER.
Swansea, Min., May 23, 1870,

REMARKS.—It is rather late now to sow seed the present season. We do not know where seed can be obtained. Write to J. L. Budd, Shellsburg, Iowa.

Bark Bursted Trees.

Gilbert Stuart, writes to know how to save bursted fruit trees, and as I have had some experience in that line I will state my mode that I have found to work best, as I have tried a vast variety of remedies. I take common yellow clay, made into a stiff morter, and cover the blemish two or three inches deep; then wrap well with an old piece of cloth, and let all remain till the growth of the tree bursts it off; and by that time all is healed over.

A tree may be gnawed by mice all around, but wrapped as above directed, before the place has dried, will heal over in one season; or, if a compact pile of dirt be mounded up all around the tree, a few inches higher than the injured parts, and so kept through the season it will save the tree. But if the injury extends clear around, and the place is well dried the case is a hopeless one.—*M. Gideon, Minn., in Western Farmer.*

THINNING OF FRUIT.—In urging the necessity of thinning crops of fruit, Marshal P. Wilder, in an article in the Journal of Horticulture, says one of two farmers near Boston always thins his fruits; the other neglects this. The first sells his Baldwin apples at $4.50 per barrel, the latter receives less than $3.50. He thinks the danger, when there is a large crop of the young fruit, is in not thinning enough rather than in over doing

For the Western Pomologist.

Deep Cultivation.

Were it not for the fact that in agricultural papers every now and again we meet with such statements as these—"The best place for a sub-soil plow is in the barn," and that Mr. So-and-so "would not plow deeper than three or four inches for any crop," it might be deemed "labor lost" saying a word in behalf of a practice so thoroughly tested as this has been, and its good effects so generally recognized both by farmers and gardeners. We readily admit all the benefits which are claimed to flow from the system may not in every instance be apparent, but it seems wrong to attribute incidental failures to any weakness in the system itself, and from quite a number of facts, gathered through many years of experience, we believe it possible to state some of the reasons why deep plowing and trenching may sometimes be unproductive of good.

Before engaging in any expensive method of cultivation, the question first in order is whether the land to be operated upon is thoroughly drained or not. What we mean is not that it should be comparatively dry, but that the means of drainage be such as to render it impossible for water to stagnate any where in the ground as deep as it is intended to be plowed or trenched. Overlooking this primary and indispensable condition of success, much labor has been bestowed and money spent without obtaining anything like an adequate return. Instances could be mentioned in which something like this has actually taken place, and that, too, when the necessity for underdraining was not strikingly apparent; but when the subsoil retained enough of moisture to prevent the land from being readily worked in the spring, and remaining longer wet after rains than was desirable. Some years ago a few rods of this discription was trenched and subsequently planted with such crops as are met with in gardens. In this stock is a collection of hardy roses which, though planted and nurtured with care, have not done so well as could be wished, they being more or less injured by frost every winter, although sufficiently hardy to stand uninjured on a dry bottom. What has happened in this case is not of rare occurrence, but is only one of a thousand instances in which the beneficial effects of trenching—trench or subsoil plowing—have been neutralized by the want of duly preparing the land by draining. Of course, reasoning from such facts, the conclusion might easily be reached that deep cultivation is not so advantageous as some of its advocates claim; but let this bar to success be removed, and it will speedily present itself in other and more favorable aspects.

Trenching is performed as circumstances and the opinions held regarding it may dictate. Some would trench sixteen inches strike deep, others two feet, provided they don't tile, sand or gravel, but rather than disturb these they would be content with much less. But the practice of going the desired depth, say twenty inches, irrespective of obstacles, seems to me, after years of experience in making new gardens and improving old ones, to be cheapest and best in the end. In order to do this, I have often had occasion to cut through hard tile, sand, and gravel beds, to remove great boulders which, for ordinary digging, might have remained undisturbed, and on one occasion had to chisel away an outcrop of Silurian rock, on a spur of one of the mountains which constitute "the shaggy top of Mona." While doing such work, we have sometimes seen the knowing ones shaking their heads and "whispering with white lips," "Ah, folly! the scull should not be broken so, for the water can not be held about the roots of the plants, and therefore they will languish when the weather is dry." But as this and all similar objections have no foundation in fact, they may be dismissed without a word of comment. It does seem strange, however, that such notions should linger in communities claiming to be intelligent—in communities even where professors of agriculture have their seats, and where farmers, friends, and instructors are distributed without stint or measure.

Much need not be said regarding the advantages of deep cultivation, as these are well known to every intelligent farmer and gardener, but as wretched digging and still worse plowing is by no means uncommon, it would be well if they were more generally understood and appreciated. Some of these are the greater depth to which the roots of plants can travel in quest of food, and away from the withering influences of intense sun heat; in rendering the mould more permeable for the atmosphere the depth to which it has been trenched; in the equalization of temperature to the same depth, thus affording increased facilities for the due preparation of plant-food; and in its becoming a more suitable medium for the transmission of water, at the same time augmenting its power to draw supplies from below when rains are withheld. We have seen evidences of all this in the improved condition of crops, both in quantity and in quality, whether these may have been "grass which grows for cattle, or herbs for the use of man."

But it is sometimes urged that by turning a poor subsoil uppermost, a condition of things is brought about opposed to all reasonable hopes of good being the result. In the work of gardening, the trouble here is not hard to overcome, as manure and compost can generally be had in sufficient abundance; and with their help, and the meliorating action of the atmosphere, the most stubborn subsoils can be reclaimed and rendered productive. It is true in the more extensive operations of farming, this method would be expensive, but there is no reson why farmers may not obtain the most desirable results by simply altering the set of their plows, at least once in every rotation of crops. To do this requires but little skill and less labor, yet it is something for a workman to know how to handle his tools skillfully. We have known a land laborer who at any time would have cut a sorry figure at club-meetings, been sore-tried to give the definition of the word "tilth," and puzzled outright to make out the difference between ammonia and antimony, but who, nevertheless, could see farther into just what was best to do to produce great results, than very many who can talk and write glibly on agriculture as a science. It was his uniform practice, whilst plowing for root crops, especially for potatoes, to hold deeper than at other times, and did not object to turn up, on such occasions, a portion of subsoil, when it lay in the way of going the desired depth, In all such cases the ends invariably justified the means, and made it plainly possible that land naturally shallow, can be brought into a condition capable of producing almost any crop in rich abundance, without the use of either extraordinary or expensive means.

A. Veitch.

New Haven, Conn.

Winter Pears.

The Beurred Anjou.—Every year's experience with this variety gives additional proof of its great value. The tree, as it acquires age, becomes more and more productive, and the fruit improves in quality as well as in keeping properties. Instead of being a late Autumn fruit, as classed in the books and catalogues, it is really, at the North, a Winter fruit Last winter Colonel Wilder carried some with him to Florida, and they were eaten there about the first of February in good condition. At the present time, (February 4th), we have them here as fresh and sound as when gathered from the tree. They have been kept in a barrel in a cool barn cellar, and when ripened a few days in a warm room, are melting and delicious. Indeed, they are very good when eaten directly from the barrel, but a little ripening in a warm place improves them, as it does most varieties that have been kept in a cool place. When we take into account the excellent character of the tree, both on pear and quince stock, the size, beauty, richness, and keeping qualities of the fruit, we can have no hesitation in awarding it the first place among late Autumn and Winter varieties. Truly a "noble fruit.'

The Josephine de Maline.—This is another variety that improves from year to year as the trees acquire age and we know more of it. While the tree is young, it is rather deficient in vigor, and the habit of growth somewhat irregular. The foliage is small, and this also detracts from the appearance of the tree. It is hardy, however, vigorous and very productive; the fruit is always smooth and fair, of a delicate straw color; the flesh slightly tinted with rose, melting and perfumed, may be kept till the second of April. The eastern Beurre being so difficult to grow, generally, I think the Josephine is the finest late Winter pears we have. We had really splendid crops of it here last season and the previous one, on trees of White Doyenne, grafted over. I have also had fine crops on a tree of Woodales St. Germain, grafted over.—*P. Barry, in the Horticulturist.*

The Hemlock.

The Hemlock is one of the most beautiful and graceful evergreens of the American forest, and when its merits shall have become duly appreciated it will everywhere have a place in ornamental grounds. The Hemlock finds no competitor for graceful, waving branches—green the whole year except a few weeks in June, when the new growth of yellowish green contrasts beautifully in the dark back ground. For hardiness it has no superior among evergreens. It is found growing naturally in the most exposed as well as sheltered locations. It stands pruning as well as any other tree—evergreen or deciduous—and makes a most beautiful hedge—a wall of green both summer and winter. Plant the hemlock. Our engraving is a most perfect illustration of the tree, when grown in the open ground. In the forests of New England the tree attains a very large size, two to four feet in diameter at the ground and running up straight as an arrow sixty or seventy feet before reaching the first limbs. We have very pleasant recollections of hemlock bark peeling times, when a youngster, in the forests of New England—an occurrence that came around no less regular than corn planting. The bark contains the most valuable tannin properties of any substance known to tanners, and is used to the exclusion of any other ingredient in the production of the finest and most durable quality of leather.

For the Western Pomologist.

A Valuable Native Plum.

Mark Miller: *Dear Sir:*—I have a fine native plum which has not failed to bear a *very* full crop annually since it began, which was eight years ago. It appears to belong to the Chickasaw family. *Fruit*—small, (about one inch in diameter,) round, yellow, colors long before it is ripe, firm and acid until mellow, then becomes soft and sweet; equal to the Green Gage in flavor, according to the opinion of many. Season, September and October. It withstands the attacks of the curculio with me, while the Green Gage and others near by it are destroyed. If it succeeds as well in other localities as here, it will be valuable for its fine flavor, great productiveness, late ripening, and firmness—enabling it to be shipped long distances, and afterwards mellowed up.

I send you herewith a few cions of this new plum, which I wish you to graft on to a bearing tree. I hope you will hold the stock in your hands until you test its qualities and report the result to me.

I am sending cions of it to other competent pomologists in various State, to have it tested in various localities.

B. P. Hanan.

Luray, Mo.

N. B. Please give us a table of contents to each number of the Pomologist, and an index at end of the volume, then it will be the best journal of the day that the country affords. B. P. H.

Remarks.—Thanks for the plum cions. We shall give a very full and complete index to the Pomologist at the close of the volume. We deem it unnecessary to give a monthly table of contents, for the reason that the paper is so well sub-divided into departments.

The Miner Plum.

Ed. Pomologist:—Do you know anything about the Miner Plum, except from hearsay? Have you it in cultivation. Can you or any reader of the Pomologist tell us whether it has been tested at all in Southern Iowa, and with what degree of luck or failure? Is it puffed and blowed by nurserymen for their own profit, or does it possess real worth?

S. H. Gates, *Leon, Decatur Co.*

Remarks.—We are just as well posted on the Miner Plum practically, as our correspondent, and no better. We have no trees either in orchard or nursery, nor have we ever seen a tree or the fruit. From what is said of it by those who ought to speak honestly, we are inclined to think well of it.

Sweet Potato Experiments.—Colonel Baylor, of Georgia, aided by some scientific gentlemen in Boston, has been for some time conducting a series of experiments upon the sweet potato. The articles produced are starch, dextrine sugar powder, a sweet kind of vegetable flour. It is said that there is a variety of sweet potato cultivated in the Southern States which will yield ten per cent of cane sugar.

It is estimated that the sweet potato crop of Georgia, properly manufactured for commercial purposes, would add from $10,000,000 to $15,000,000 to the wealth of that State. The value of the manufactured crop in North Carolina would exceed this sum.

The Best Time for Pruning Grapes.

I have read the various articles in Tilton's Journal of Horticulture in regard to the pruning of grape vines. I do not propose to theorize upon the subject, but to give the experience of twenty years for what it is worth. At first I supposed it was improper to prune in the Spring, when they bleed the worst, the Germans, whom I mostly employed, having a prejudice against it. But sometimes some parts of the vineyard were trimmed at this supposed improper time.

The closest observation I was able to make, discovered no bad result, and I have never seen that it made any difference when the vines were trimmed, from the time the leaves were ripe in the Fall to as late as the 20th of June. I seldom get all my vines trimmed before the first of June.

Since we have had the rot, I have in some vineyards tried leaving the three canes the full length until August, when if no rot appears, I cut off the surplus wood, but if the rot set in have left the whole vine, and got a larger yeild than from vines short pruned. But where there was little or no rot, the shortest-pruned vines have uniformly borne the best crops. I am clearly of opinion that the best time to trim is whenever it is most convenient after the leaf is dead in the Fall, until the first of June.

I have always root-pruned pretty severely, plowing deep close up to the vine, and cutting the roots in the first hoeing in the Spring in most of my vineyards, but I have also tried the reverse, and must confess I have never been able to see much difference in the results. There are now seven to eight hundred acres here in bearing.

Some persons think that Spring trimming is best, but do not claim that they have any facts to prove it. It is true that some parts of vineyards have been trimmed in the Fall, and did not bear as well as the part trimmed in the Spring, but the reverse is also sometimes true. It is quite common to have one part of a vineyard do better than another one year, and the case reversed another year. If Mr. Byington or Mr. Underhill will give us facts instead of theory, I think it would aid us more in the direction of correct conclusions than theorizing.—*Addison Kelley, in Journal of Horticulture.*

The Sex of Plants and Vegetables.—Hamilton Perry, of Saratoga, contends that in every variety of the vegetable, as in the animal world, there is male and female. In some vegetables, as the potato, one end is male and the other female—the latter producing more abundantly than the former, and of better quality. Where the female or seed end of the potato only is planted, there will be no rot, and a much better yield than when both ends are mingled in the same hill.

Preparing Sulphur for Grapes.—Mr. J. A. Flagg, in a small treatise on the application of sulphur, says much of the flour of sulphur contains sulphuric acid, which injures the leaves of the vines, which may be washed out sufficiently by stirring well in a tub of water, then letting the sulphur settle, then pouring off the water and repeating the process three or four times, and then drying the sulpher on boards. Mr. Flagg is now importing some ground sulphur from Italy for samples, such as is largely used in the Mediterranean districts; this has no acid, but is in other respects inferior to flour of sulphur.

For the Western Pomologist.

Advancement of Pomology.

EDITOR POMOLOGIST:—The cultivation of fruit, especially the apple, will receive increased attention, if the earnest inquiry for trees can be taken as an index of what is to come. In this vicinity the supply is so far exhausted that thrifty trees are not readily obtained. Those desiring to transplant have to rely on nurserymen at a distance, and consequently in a short period of time you will hear the old story of failure, and almost feel the storm of indignation that must follow. The nurseryman is not directly to blame. In closing out he finds a large stock of trees, not of the popular varieties, and with the instinct of true Americanism he disposes of them to the best advantage. Many of these purchases have been sold and are selling here at remunerative prices for trees "*home raised* and *true to name.*" A large quantity of apple trees and grape vines were disposed of last Fall, whose roots were exposed to the bitter cold of October and November, and if they grow it will certainly be a miracle. But those persons imposed upon may demand a large per centage of sympathy from the community for losses sustained, but the reading and reflective mind will know how to guage its feelings. If the POMOLOGIST was more generally read and earnest heed paid to its practical teachings, we would have better orchards and hear of fewer failures. It is unquestionably true that most of our farmers have advanced rapidly in pomological knowledge in the last few years, and this is chiefly due to the attention given to the lessons taught in our agricultural papers and the practical experiments in trying to grow trees of their own. Yet it will be many years before we will expect to see fruit cheap, as the demand increases more rapidly than the production. To what extent the cold snap has affected the fruit can not now be determined. Some varieties of fruits have suffered severely.

OBSERVER, *Urbana City, Iowa.*

NO MILDEW IN MICHIGAN.—H. E. B., South Haven, Mich., writes the *Journal of Horticulture* as follows: "On one of our lake shore sand ridges I set out, two years ago next March, on a new clearing, without trenching or plowing, five thousand grape roots, of the following varieties: Delaware, Iona, Israella, Allen's Hybrid, Diana Norton's Virginia, Wehawken, Martha, Joanac, and Black Hamburg. They have all grown finely, without rust or mildew, notwithstanding the extremes of drought the first season and wet this year. So mild are our winters that the vines are not taken off the trellis.—Even Black Hamburgs do no winter-kill. I picked up frozen Delawares December 1."

TO KEEP A BOUQUET FRESH.—Drop a tablespoonful of powdered charcoal into the water intended for the flower stalks, and they will keep their freshness and perfume for several days, and look and smell the same as those just gathered. The charcoal settles to the bottom of the vase, the water remaining clear. So says an exchange.

The Sable Queen Blackberry.

Within the last ten or fifteen years several new varieties of the blackberry have been presented to the public. But so far as we know, not one has proved a profitable market berry in this latitude. We now have, in the SABLE QUEEN, of recent introduction, another for which much is claimed. Mr. J. H. Manning of Reading, Mass., has been principally instrumental in bringing this new variety of the blackberry before the public, and from whom we have derived the following particulars of its origin:

"Its size and fruitfulness, quality and exceeding beauty, in comparison with the Dorchester and Lawton blackberries (grown on the same *light soils*), have so far exceeded these justly celebrated varieties, that those who have compared them do not tolerate their presence. Last season (1869) it has been tested in our grounds with Kittatinny and Early Wilson. It maintained its claims in quantity and quality of fruit. We assert in the strongest terms it has no competitor yet compared with it. Its season of ripening is one week earlier than the Lawton. Its endurance in cold winters is unexcelled.

More than twenty years ago, Mr. Daniel graves (now deceased) frequented an old pasture in Essex county, Mass., in the season of fruit, to obtain berries for family use.—He observed, season after season, a single bush or cluster of blackberry bushes, every year excelling all surrounding plants in amount, size, and quality of fruit. He dug it up and planted it in his garden. Here it outstripped its former self, and produced an abundance of berries infinitely superior to anything then known."

The editor of the *Horticulturist* (good authority) in his issue for March, 1869, says of the "Sable Queen:"

"In our editorial rambles, last fall, in the neighborhood of New York, we discovered in the grounds of a friend a variety of the blackberry which for its dark luxuriant growth and hardiness excited our closest attention and deepest interest. It seemed to promise a decided acquisition to our list of blackberries, and evidently, as far as grown and tried, bore marks of a superiority to all others by its side. In comparison with the Wilson, Kittatinny, and Lawton, the rank growth of this "stranger" afforded a very strong and pleasing contrast. The variety is named the Sable Queen."

SALT LAKE REGION.—Joseph Hoopes (President of the Pennsylvania Horticultural Society), writes to the Gardners' Monthly that in his trip to the Pacific, he found an excellent fruit region at Salt Lake City. The peaches were mostly seedlings, many fine varieties of clingstones, unknown at the East. The grapes were all exotics, large and handsome, but not of best quality. No destructive insects were seen; not a single curculio mark.

☞ The owner of a vineyard in Niagara County, gives it as his opinion—based on an experience of twenty years—that grapes can be produced at three cents per pound with as great profit as wheat at two dollars a bushel.

The Obligation to Plant Fruit Trees.

What a pity it is that people do not, as a general thing, appreciate more fully than they do the value of fruit. There are thousands of farmers who do not grow enough fruit on their own premises to supply the ordinary wants of their families, much less any for market. Now, when the fact is taken into consideration, that as an article of diet, fruit is not only wholesome and healthful, but that it can be in many cases substituted for other expensive articles of food, and more especially meats, it is surprising that comparatively so little attention is paid to its cultivation. We are not of those who believe that every one is capable of becoming what is generally termed a successful fruit-grower; by which we mean, that to produce such specimens as those usually shown at a horticultural exhibition requires more care and attention than a great many farmers are willing to be able to give to the subject. But on the other hand, no man who tills the ground, if he possesses even the most superficial knowledge of horticulture, need hesitate about setting out fruit trees, and attempt the cultivation of a patch of strawberries, blackberries or raspberries.

Nurseries abound now in almost every section of the country, and the cost of young trees is so trifling that the first expense of setting out a small orchard cannot be urged as an objection, and as the subsequent attention required by the trees after planting is to be regarded as little more than pleasant recreation, there is no reasonable excuse that can be offered by farmers for not giving more attention to the planting of fruit trees.

There is nothing that we know of that presents an appearance more forbidding or desolate than a farm on which there are few or no fruit, shade, or ornamental trees, and yet there are many such, and it may be set down almost as a fixed fact, that a farmer who will not cultivate fruit trees, generally speaking, has few or none of the ornamental or shade kind about his house, unless they were planted by other hands than his own.

Fruit tree planting should be regarded as a privilege and a duty, and the farmer who neglects to exercise this privilege and discharge this duty, is false to himself, his family and posterity, for the cultivation of a bountiful supply of good fruit, is one of the strong claims which the farmer's family, and those who are to follow, have upon every owner of a piece of ground in the country. *Cor. Journal of the Farm.*

The Cultivation of Timber.

"When you have nothing else to do, plant a tree; it will grow when you are sleeping." This advice, we think, may be extended to times when people are not at leisure, and to the United States Government as well as private individuals. Why not make a business of planting trees? We are well aware that in many cases trees have been planted and grown with success, by private individuals and on private estates, but the fact remains that large areas of public domain are to-day entirely without timber, and the sources from which lumber can be derived to supply the needs of this territory upon its future settlement, are undergoing a drain which will ultimately exhaust them.

If there exists reasons why the agricultural department of our government could not, if disposed, greatly increase the value of the public lands by rendering nude portions tree-bearing, they are not now obvious to us.

Our continent possesses a variety of forest trees of industrial value, exceeded by no area of similar extent. Certainly in all this variety there may be found some adapted to vigorous growth in almost any climate, or any soil capable of sustaining vegetation.—*Scientific American.*

California Fruit-Exportation.

A correspondent of the Chicago *Republican*, writing from San Francisco, remarks upon the exportation of fruit from California to the Atlantic markets:

The exportation of fruit, fish and vegetables is going to be an important item of income to California. A short time since an experimental shipment was made of 12,000 pounds of salmon, packed in ice; the fish reached its destination in excellent condition, brought a large price, and many additional orders. Several bales of fresh celery, cauliflower, cucumbers, and other vegetables, are forwarded to New York in a refrigerator car by each day's express, and to-morrow 1,500 pounds of strawberries will be shipped to the same market. To prevent bruising they are carefully placed in wooden trays, each one holding but a single layer of fruit. These are then put in convenient sized boxes or crates, and ice is liberally distributed over them. The coming summer will witness an immense fruit exportation. In nothing does California so much excel as in her orchard produce. Last year about 300 tons of apples, pears, grapes, and plums were sent east by railroad. The average price netted for pears was fifteen cents a pound. Grapes of Muscat, of Alexandria, flame-colored Tokay, and Black Hamburg varieties brought thirty cents, and the native California grape twenty cents a pound. A strange anomaly is that last year we imported 6,000 barrels of dried apples, and left hundreds of thousands of bushels of the same fruit, far superior in quality, to decay under our trees, and then we wonder that the state is poor.

INTRODUCTION OF THE HONEY BEE.—L. V. Bierce, in the Medina (Ohio) *Gazette*, does not think the honey bee is "native and to the manor born," but like the skunk and gray squirrel, precede the advance of civilization. To back up his opinion, he presents the following testimony:

LETTER OF GEN. BIERCE.

AKRON, Sept. 11, 1869.

In 1759, Dugald Campbell, a Highland Scotchman of the Campbell clan, was living in the Tuscarora valley, on the bank of the Canacaquia creek in Cumberland county, Pennsylvania. Campbell had a daughter Mary, a lovely black eyed child of seven summers. A party of Delaware Indians captured Mary and took her to their camp on Catanious in what is now Armstrong county, Pennsylvania. Mary was adopted by Natawawees, head chief of the Turtle band of the Delawares, who signed the treaty of 1718 at Canastoga.

The following year Natawawees with his band left Pennsylvania and removed to the big fall of the Cuyahoga, just below what is now Cuyahoga Falls, in Summit county. At the foot of these falls were two villages. One the south belonging to the Iroquois, the one on the north side to the Delawares—the river being the boundary between them.

After being a prisoner four years, Mary was surrendered up to the whites at the treaty of Muskingum in 1763, and taken back to Pennsylvania.

1771 she was married to Joseph Wilford of Cumberland county, Pennsylvania, and became the mother of Rev. Samuel Wilford, who died a few years since near Orville, Wayne county; and grandmother of Hon. Joseph Wilford, late Senator from Wayne county, in the Ohio Legislature. ☞ *While Mary was living at the falls of Cuyahoga, honey bees made their appearance among the Indians in this country. The Indians were greatly troubled, as they said bees were the forerunners of the pale faces.*

Evergreens and Fruit Trees Dying.

Under the above heading a correspondent of the *Country Gentleman*, under date of May 11, writes from Champaign county, Ill., that evergreens and fruit trees are, this spring, dying in a very unexpected way:

I notice in almost every collection of evergreens, more or less are dead, or are going to decay. The causes which kill, seem to be operating on all alike—white pine, Norway spruce, Austrian pine, and the Scotch pine too—while I think those Balsam firs, ten years or more planted, are looking more faded, ragged and forlorn than they elsewhere generally do at that age. The blight has re-appeared in pear orchards, and is even affecting those root pruned, cut and manured according to the wisdom and direction of our State Horticulturist, Dr. Hull. Morello cherry trees are dying, against the popular opinion, which classes them with mules and donkeys, which are supposed to never die.

We are beginning to notice that after trees have been ten years or more planted on the prairies, though up to that time they have, where cared for, grown and flourished in a wonderful way, suddenly this growth and vigor disappears, and then, if disease and death do not come, a period of no growth or torpidity follows. Are the prairies treeless, because from some recondite cause, arboreal vegetation will not achieve a long life on them? some of us are beginning to ask ourselves. The general opinion is, that the prairies are bare because arboreal vegetation has never had an opportunity to cover them. We may have to reverse our opinion on this head. Before I can advise your correspondent as to the growth of evergreens in Central Illinois, I must wait and see to what an extent this dying of evergreens goes on.

A Successful Pear Orchard.

M. B. Batuham gives in the Northwestern Farmer, an account of the pear orchard planted some years ago by A. Fahnestock, six miles below Toledo on the Maumee River. The soil is a strong clay loam, well underdrained and subsoiled. Ten acres are occupied by a thousand trees, all of which, with scarcely a failure or defective tree, are of fine size and shape. Mr. Fahnestock says: "A large portion of my trees are perfect beauties of form, as well as in health and vigor. They are branched from within two feet of the ground, and are ten to twelve feet in width at the base, regular cones or pyramids in shape, from eighteen to twenty feet high." Of the varieties, there are 100 Seckel 100 Anjou, 200 Flemish Beauty, 200 Sheldon 200 Bartlett, 100 Buffum, and the rest sorts in smaller quantities on trial. The Buffum is found to grow too fast, the shoots averaging three or four feet annually, the wood soft and spongy, and the trees liable to blight It is obvious they are in too rich a soil. Trees of the age mentioned should never be allowed to grow more than two feet yearly—less would be better. The trees of other sorts, mentioned as of twelve feet spread and twenty feet high, grown in seven years, have had a rather more rapid growth than we should regard as safe, although as yet there has been but little blight among most of the varieties. Trees in this orchard which sent their roots down four feet or more into the clay subsoil, are found to be more healthy than those having roots near the surface. The Bartletts outbear, four to one, any other sort.

Seth Boyden, a famous strawberry raiser, said if he lived twenty years longer he would produce a strawberry as large as a pineapple and as delicious as the best field strawberry.

For the Western Pomologist.

Fruit Culture.

BY WALTER ELDER, LANDSCAPE GARDENER, PHILADELPHIA, PA.

Many men are *brave* to "go into the thing," but in the culture of fruits prudence is far preferable to bravery. Certain species and varieties of fruits are profitable in certain soils and localities; therefore, it requires considurotion as to what species will thrive upon individual farms, and when the right kinds are set out no other crop will bring in half the profit that fruits will. The pear is very shy in some localities and soils, and most profitable in others. Dwarf pear trees, upon quince stocks, have proved universally failures, so standards must be relied upon. The roots of the pear tree strike deep into the ground, and if the subsoil is of the right texture, success is certain. But it is well to try the pear upon all soils and localities, as by that we may find out the true secret of general success. The apple does well everywhere; but some varieties do better in some localities, and upon certain soils, than others. So these freaks can only be learned by setting out many varieties, and watch which do best; then plant them most largely. Peach and plum, being perishable fruits, require an immediate sale, and the many conveyances to markets by railways will suit those at great distaoces from markets, as well as those in close proximity thereto. When trees are transplanted, they go through a surgical operation, by having some of their roots cut, and their branches should be shortened, to prevent too great a draught of sap from the roots, until they have had time to make a new set of fibres to sustain themselves. The holes should be dug wider than the spread of the tree roots; the soil should be broken fine with spade or hoes, and left to aerate a few days before the trees are planted. If the trees are to come from a distance, dig the holes a few days before the trees arrive, and when they come, set them out at once. Let every tree planter consider that a plant out of the ground is like a fish out of the water, it is suffering. Upon flat, undrained lands, spring planting is best, when the soil gets dry enough to dig well; but upon rolling lands, fall planting is the best time. Mulching is better than watering. The soil should be well fertilized and tilled, before the trees are set out, and be well cultivated for two years afterwards, so as to give a lively growth of wood; after that the lands may be seeded down with wheat and grass, and lie for five years; then the sod broken up, and a cultivated crop, say, potatoes or Indian corn one year; then, in fall, to seed down again with wheat and grass, to lie for five or six years; by that, the trees will flourish and bear well.

At the National Pomological Convention, held last autumn in Philadelphia, the gallant and *loyal* State of Kansas carried off the palm for fine tree fruits, and may not loyal Iowa do the same next autumn? We have got to understand that Iowa has the best climate and soil for tree fruits in the nation, and no doubt, she will soon outstrip all others in that department; and in a few years, her vineyards may surpass those of Italy and France. Only let her citizens be enterprising, and not daunted by slight failures, as we all gain more wisdom by our failures than by our successess. It is to the Western states that we now look for superior fruits. Our Eastern states have been so long severely cropped with grains, and so poorly tilled and fertilized, that our farmers say their lands are "worn out," so they are rapidly selling out to go to Iowa and her neighboring states to "get lands worth tillage;" so it is those gallant yeomen, with long experience, who will make a "Paradise" of the Western states. But why do we call them *Western states?* They will soon be the *Middle states* The great railway is now finished; and numerous states beyond Iowa will spring into existence; and who knows but the national capitol will, ere long, be established in Des Moines, never to be removed therefrom?

Remarks.—Fall planting may do for Pennsylvania, as recommended, but not for this prairie country.

For the Western Pomologist.

The Cherry Question.

I have been an interested observer of the discussion going on in the horticultural journals for several years on the subject of cherry tree stocks for the West. All agree the Mazzand stock is out of the question, it is too tender and winter kills. This narrows the discussion down to the Morello and Mahaleb stock, upon which to work the cherry. I do not propose to go into review of the discussion, but only to say that I have had some experience in the matter, extending over a period of the past ten or twelve years, and that experience and observation favors the Mahaleb for a stock for every variety of cherry worthy of cultivation in the West, the Early Richmond as well as others. I regard the top-grafted Morello sprouts, taken up from the fields and fence-corners, where they have grown from the broken roots of old Morello seedling-trees, as nothing short of a nuisance. True, the Early Richmond top-grafted upon them will bear early, but they will bear nearly as early on the Mahaleb, and the cherries are invariably larger, more perfect, and better developed. This I know from positive observation for a period of at least ten years, and the stock is thoroughly hardy and vigorous, and don't sprout from the roots at all.

I admit that the Early Richmond on the Mahaleb stock will not bear as full at three or four years as on the Morello stock, but after from four to six years, if there is any difference in the bearing qualities of the two stocks, it is in favor of the Mahaleb, and the English Morello at least bears quite as early and full on one as the other. I have an Early Richmond tree on my grounds worked on Mahaleb stock, planted some twelve years ago at two years from the bud. This tree at first bore moderately, but for the past four or five years, has borne wonderful crops of the largest and most perfect Early May cherries I ever saw. My foreman, Mr. Sharp, who gathered the cherries from this tree last year, for his family use, informed me he believed he had taken nearly three bushels of cherries from this single tree, which is a marvel of healthy vigor and beauty. I have so much faith in the Mahaleb cherry as a stock, and what I believe will be the prevailing sentiment of cherry-tree planters on this subject after a very few years, that I am this spring importing forty thousand Mahaleb stocks, every one of which I expect to plant and work on my own grounds, to supply the wants and demands of Iowa and Missouri tree planters hereafter, when they become thoroughly disgusted with the Morello sprouts now being scattered over the country.

To sum up the matter, then, the Mahaleb is thoroughly hardy and vigorous, don't sprout from the root, with the Early Richmond does not bear so many cherries for the first four or five years, but what cherries are borne are unusually large and perfect, and after that length of time, bears regularly and most bountifully of larger and more perfect cherries than on the Morello stock.

W. Bird.

Mt. Pleasant, Iowa.

For the Western Pomologist.

Grimes' Golden.

Friend Miller:—I was very much interested in Mr. Hanna's history of this apple. I can add a paragraph to its history in this State, but Greenbury Wood, of Cedar county, could tell us a good deal more about it than any other one up in this part of our State. I believe he is a son of Samuel Wood, of Smithfield, Ohio, and he brought the cions from his father's orchard at a very early time in the history of nurseries in Cedar county, and now the orchard trees of those cions are bearing, and the fruit of those trees was on exhibition at the West Liberty fair last fall. Mr. Budlong also brought some of Dr. Holingsworth's specimens of Grimes' Golden up from the State fair.

I observed on a fruit stand where apples were for sale, at this fair, some beautiful golden yellow apples; their peculiar cylindrical form was like the Grimes. I bought some, and the flavor was so identical with that of the Grimes, that Mr. Henry Strohm, Isaac Negus, Mr. Budlong, Dr. Kimball, myself and others, decided that they were Grimes' Golden, which the owner said he bought by the barrel in Davenport. We

conjectured that they were probably brought up from north-east Missouri, and sold in Davenport. So at West Liberty, we had a very good taste of Grimes, and pronounced it all that Mr. Hanan and his authority have recommended.

I had seen this apple before last year, and two years ago I obtained twelve trees, three years old, of Mr. Marshall, of Massilon, Ohio, snd last fall I obtained two hundred and fifty more, three years old, most of which I shall set in my orchard for fruit. The trees are upright, good growers—much like the "Ben Davis."

SUEL FOSTER, *Muscatine.*

The Pear on the Thorn.

A correspondent in the *Country Gentleman* writing from Massachusetts, says:

"Many years since I top-grafted an old thorn bush with several varieties of pears, some of which grew finely for a short time, but none lived long enough to bear much fruit. Mr. Haskell tells us that the Vicar succeeds well, and not long since I read the statement of a gentleman residing in the west, who has found the old White Doyenne to do well also. He stated that with him it was free from all deffects when grafted on the white thorn.

A friend of mine, an Englishman, told me that he had often eaten pears of the old Swan Egg variety from branches grafted into the hawthorn. Now perhaps the hawthorn may be better suited to the pear than our thorns are. I think if one has it, that the experiment is worth trying, using White Doyenne and Vicar cions.

Budded upon seedling hawthorn stocks, perhaps valuable dwarfs might be obtained; at any rate the experiment would cost but little. Let us hear from any who have tried it."

The Bartlett worked high up on the white thorn has proved a perfect success in our immediate vicinity. Mr. Isaac Brandt of this city, some twelve years since, worked a cion of the Bartlett into a white thorn standing in his garden lot. For eight or nine years past the tree thus formed has not missed a crop of fruit. Four bushels of fine pears have been gathered from the tree in a single season. The tree often sets so much fruit that Mr. B. finds it advisable to thin out by hand picking at any early stage of growth, to enable the tree to stand up under its burden of fruit.

LIQUID MANURE FOR STRAWBERRIES.—A correspondent of the Small Fruit Recorder gives the result of an experiment which he made with liquid manure for strawberries. He said that he procured a half hogshead, filled it with rain water, and put into it one quarter of a pound of ammonia, and one quarter of a pound of common nitre. When the strawberry plants were blossoming he gave them a sprinkling of the solution at evening, twice a week, until the fruit was nearly full size. The result was nearly double the amount of fruit on those to which the liquid was applied, than was obtained from plants alongside, to which none of the liquid was given.

The tumble-dung beetle is identical with the *Scarabæus* or "sacred beetle" of the Egyptians.

ENTOMOLOGIST

Curculio—Bark Lice.

C. V. Riley, State Entomologist of Missouri, read a paper before the Horticultural Society of that State, from which we take the following interesting extract:

"Owing to the severe drouth of 1868, which was unfavorable to its successful transformation, that dreaded foe of the fruit-grower, the Plum Circulio, was scarce in the early part of the season, and our plum and peach trees set a fuller crop than they had done before for years; but the subsequent moist wenther was favorable to the underground evolutions of this little pest, and the new brood appeared in great numbers about the end of June and beginning of July, when they did much damage to stone fruit, and some damage to pip-fruit by the gougings which they made for food.

As stated in an essay read before the State meeting of our Illinois horticultural friends, I have discovered a little cannibal in the shape of a minute species of *Thrips*, which destroys vast numbers of the little turk's eggs; and let us hope, that by attacking the Curculio in its most vulnerable point, this *Thrips* may in the course of a few years reduce the numbers of the Curculio, as the ladybirds have done with the Colorado Potato bug, or as the minute mite (*Acarus mali*) is known to have done with the common Oyster-shell Bark-louse of the Apple.

The eggs of the Apple-tree Plant-louse' (*Aphilis mali*) which last winter so thickly covered the twigs of the apple trees in many orchards, hatched and produced prodigious number of lice as soon as the buds commenced to burst. In this immediate neighborhood they were soon swept away, however, by their cannibal foes, and by insectivorous birds, such as the warbler, etc.; but a physiological fact connected with this insect has been developed this year by Dr E. S. Hull, the able Illinois State Horticulturist, which is of so much importance that I cannot pass over it in this brief report. He has ascertained that we suffer from the injurious punctures of their little beaks long after the lice themselves have disappeared. In fact, he has proved to his own satisfaction that the so called "scab" in apples, which prevailed to such an alarming extent last year, and rendered thousands and thousands of bushels valueless for market purposes, is actually caused by the punctures of these lice.

I said the doctor had proved this matter "to his own satisfaction," because I believe that caution requires that we should not consider it an established fact until all objections to it can be dispelled- Personally I have made no observations on this matter, but the facts in the case all add weight to Dr. Hull's theory, if such it can be called.

Hitherto the cause of the "scab" on apples has been involved in mystery. It was supposed to have a fungoid origin; yet an examination will show that the scabby appearance is not caused by any live fungus, but by arrested growth of the cells which have become corky and cicatrized. The importance of this discovery of Dr. Hull's should it once be firmly established, cannot well be estimated; for when we have once ascertained the cause of a disease, it need scarcely exist any longer. By destroying the lice we shall prevent scabby apples, and experience teaches that they can be destroyed by a good syringing of tobacco water.

We may expect, in this immediate vicinity, an almost total exemption from "scab" next year, 1870 for the apple trees are remarkbly free from the minute thread like eggs of the Plant-louse with which they were so thoroughly peppered a year ago.

Influence of Colored Light on Insects.

The discussion of the changes produced in animal and vegetable forms by the influence of varying conditions of temperature, moisture, light, locality, etc., especially as connected with the Darwinian hypothesis, has induced a great variety of experiments, from which some interesting results have been derived. In some of these experiments, lately published, a brood of caterpillars of the tortoise-shell butterfly of Europe, was divided into three lots. One third were placed in a photographic room lighted through orange colored glass, one-third in a room lighted through blue glass, and the remainder kept in an ordinary cage in natural light. All were fed with their proper food, and the third lot developed into butterflies in the usual time. Those in the blue light were not healthy, a large number dying before changing; those raised in the orange light, however, were nearly as healthy as the first mentioned. The perfect insect reared in the blue light differed from the average form in being much smaller, the orange-brown colors lighter, and the yellow and orange running into each other, instead of remaining distinct. Those raised in the yellow light were also smaller, but the orange-brown was replaced by salmon-color; and the blue edges of the wings, seen in the ordinary form, were of a dull slate. If changes so great as these can be produced in the course of a single experiment, it is probable that a continuance of the same upon a succession of individuals will develop some striking results.—*Harper's Magazine.*

The Dorbug.

Warren S. Hill, who resides near the Manchester Riding-Park, finding an unusual number of "dorbugs," or May beetles, flying about, erected a light in his garden one evening last week, and beneath it placed a tube of water, and as a result caught 102 of the beetles.

Mr. Hill has been giving attention to this specific branch of Natural History, and has traced out the lineage of the beetle pretty fully. The "dorbug," as we are accustomed to designate it, is the progenitor of the large white worm which gnaws the grass-roots, and in autumn eat potatoes most voraciously. It feeds on all kinds of garden crops, and often blights the most valuable crop.

Where a pile of manure has been laid abundantly, will be found an abundance of these white, fat worms, which are produced from the eggs deposited by the dorbug.

Mirror and Farmer.

THE BLUE JAY.—Charles Carlisle, of Woodstock, Vt., writes to the New York Farmers' Club: "Small-fruit men think it pays to feed and befriend the Blue Jays; they mimic and mock other birds, talk, scare and deceive with a screech like a hawk. I have been cultivating small fruits a number of years past; I soon learned that my interest and the interest of the Blue Jays were reciprocal. I allow them free access to my corn crib in the winter; in the summer they provide for themselves, and act the part of a police force to protect my crops."

Iowa State Horticultural Society.

For the convenience of those who may wish to correspond with the officers of our State Horticultural Society, we present a list of the officers and standing committees for the current year:

OFFICERS.

James Mathews, Knoxville,	*President.*
Suel Foster, Muscatine,	*Vice-President.*
D. W. Adams, Waukon,	*Secretary.*
David Leonard, Burlington,	*Treasurer.*

DIRECTORS.

J. L. Budd, *Shellsburg*, S. J. Comfort, *Dennison*, C. E. Whiting, *West Fork*, E. D. Morgan, *Pella*, E. R. Heisz, *Rock Grove*, James Smith, *Des Moines*, Mr. Allen, *Wayne Co.*, G. B. Brackett, *Denmark*, Dr. Kridelbaugh, Clarinda.

STANDING COMMITTEES.

PEARS, PLUMS, CHERRIES AND PEACHES.

G. B. Brackett, Lee county, Mark Miller, Polk W. W. Waters, Muscatine.

SMALL FRUITS.

Mr. Allen, Wayne county, Mr. Parker, Clayton, J. M. Pearmain, Scott.

EXPERIMENTAL HORTICULTURE,

James Smith, Polk county, James Mathews, Marion, D. W. Adams, Alamakee.

NOMENCLATURE.

E. R. Heisz, Floyd county, Z. Hollingsworth, Lee, James Smith, Polk,

APPLES.

Mr. Murdock, Clayton county, E. D. Morgan Marion, Mr. Caulkins, Polk,

HEDGES.

J. L. Budd. Benton county, H. C. Raymond, Pottawattamie, R. S. Willett, Poweshiek.

FORESTRY.

C. E. Whiting, Monona county, Mr. Tracy, Winneshiek, G. W. Seevers, Madison.

PREMIUM LIST AND JUDGES.

S. J. Comfort, Crawford county, Suel Foster, Muscatine, P. P. Spear, Blackhawk.

ENTOMOLOGY.

Dr. Kridelbaugh, Freemont county, J. T. Hopkins, Guthrie, Dr. Alex. Shaw, Polk.

Wisconsin State Horticultural Society.

SUMMER EXHIBITION,

The Wisconsin State Horticultural Society will hold its first Summer Exhibition at Oshkosh, on Wednesday and Thursday, June 22 and 23. The following is the Premium List and Programme for the occasion:

1. The Hall will be open on Wednesday for the reception of articles, at 8 o'clock, A. M., at which time the Committee of Arrangements will be in attendance; No article can be entered for competition after 2 o'clock.

2. The payment of one dollar will entitle the exhibitor to the privileges of the Society, and the free admission to the Exhibition of himself and wife. Single admission tickets 25 cents.

3. The Committees on Fruits, Flowers and Vegetables, will be in attendance at 3 o'clock, P. M., of Wednesday, at which time the books of entries will be delivered to them, and they will proceed to the examination and award of premiums.

4. Hall will be open for visitors at 2 P. M., Wednesday.

5. Articles entered for competition must be grown or produced by the person entering the same.

6. No article can be entered for competition in more than one class, or receive more than one premium.

7. No premium will be awarded to unworthy articles.

8. Discretionary premiums will be awarded for Fruits, Flowers and Vegetables, not enumerated in the list, that may be considered meritorious by the Committees.

9. Committees will report and return to the Secretary their books containing the awards by 2 P. M., Thursday. At 3 P. M. the awards will be read and premiums delivered. No article entered for competition can be removed from the tables until after the awards are made public; after which the Hall will be cleared for a social party, with music in the evening.

Geo. E. Morrow, of the *Western Farmer*, will deliver an address in the Hall on Wednesday evening, June 22,—after which there will be discussions upon Small Fruits, Varieties, Culture. Soil, etc,

We are in correspondence with the various railroads of the State, and it is confidently expected that they will grant the horticulturists the usual deduction in fares on the occasion of the Exhibition, of which due notice will be given.

Strawberries.

COMMITTEE.—W. T. Leitch, Madison; I. J. Hoile, Oshkosh; L. L. Fairchild, Rolling Prairie; G. N. Smith, Berlin; J. S. Stickney, Wauwatosa.

Best and greatest named varieties, Chromo—Basket of Strawberries $8
2d do ....Gold Pen and Holder 5
Best 5 or more sorts named.. Chromo—Spring 6
2d do do ....Fruit Knife 3
Best 3 or more sorts.... ...Chromo—Morning 5
2d do ....Hurticulturist one year 3
Best quart any variety.....Chromos—Rest by the Roadside; Under the Apple Tree..... 5
2d do ....Western Farmer one year 2
Best quart Wilson's... .....Chromo—After the Rains 3
Best quart Agriculturist.....Chromo—Before the Frosts 3
Best quart Green Prolific.....Chromo—Wild Roses..... 3
Best quart Russei...Chromo—Easter Morning 3
Best quart Mexican Everbearing...Chromo—Victory, and Journal of Horticulture..... 3

Other fruits of the season that may be on exhibition, will be examined by the committee, and receive awards according to their merits.

Plants and Flowers.

PROFESSIONAL CULTIVATORS.

COMMITTEE.—F. S. Lawrence, Janesville; J. Gripper. Madison; Mrs. F. S. Lawrence, Janesville; Mrs. Henry Ryan, Baraboo; Mrs. Geo. Hyer, Oshkosh.

Roses, and Plants in Pots.

Best and greatest variety...Chromo—Sunset, $10
2d do Downing's Fruits and Fruit Trees of America..... 7
Best six Perpetual.....Journal of Horticulture and Western Farmer..... 5
Bust three Perpetual..... Horticulturist 3
Best six Tea..... .Chromo—Springtime 5
Best three Tea..... .....Western Farmer and The Western Pomologist..... 3
Best six Geraniums.....Gold Pen and Holder 5
Best six Fuschias..... do do
Best display of Plants, all sorts.....Chromo—Sunset, California scenery..... 10
2d do .....Geutleman's Cane 6

Cut Flowers.

Best and greatest variety Verbenas...Chromo—The Sisters 3
2d do .....Chromo—May Flowers 2
Best and greatest varitey Pansies...Practical Horticulture 2
2d do do .....Western Pomoligist 1
Best and greatest variety Pinks..... .Gardener's Monthly 2
2d do .....Chromo—Apple Blossoms 1
Best and greatest variety Roses....Parkman's Book of Roses..... 3
2d do .....Tea Bell 2
Best six varieties June Roses.....Chromo—The Baby..... 3
2d do do .....Western Farmer 2
Best display of Flowers.....Breck's Book of Flowers..... 3
2d do .....Prairie Farmer.. 2
Best round Boquet..... Chromo—Not Caught Yet..... 2
2d do .....China Vase 1
Best flat Boquet.....Chromo—Just Caught 2
2d do .....China Vase 1
Best floral design...Chromo—Playing Mother 5
2d do .....Silver Fruit Knife 3

Premiums of the same value will be awarded to non-professional exhibitors.

COMMITTEE—H. G. Roberts, Janesville; J. Gould, Beaver Dam; Miss A. Stevens, Madison; Mrs. J. Richardson, Sheboygan; Mrs. Eli Stilson, Oshkosh.

Vegetables.

COMMITTEE.—Eli Stilson, Oshkosh; G. J. Kellogg, Janesville; G. P. Peffer, Pewaukee.

Best and Greatest variety... Chromo—Have Patience..... 4
2d do do .....Tea Bell 2

For further particulars, address

O. S. WILLEY, *Sec'y.* I. J. HOILE,
Madison. Oshkosh.

Iowa Eastern Horticultural Society.

The Iowa Eastern Central Horticultural Society will meet at Iowa City, June 20th, at 10 A. M., and hold a two days' meeting. This Society, embraces the counties of Louisa, Muscatine, Scott, Clinton, Jackson, Jones, Cedar, Washington, Johnson, Linn, Buchanan, Iowa, Keokuk, Poweshiek, and Tama. The officers are:

SUEL FOSTER, Muscatine, *President.*

J. Doran, Mt. Vernon; H. Strohm, Iowa City, *Vice-Presidents,*

J. W. Pearmain, Davenport, *Cor. Sec'y.*

J. L. Budd, Shellsburg, *Rec. Sec'y.*

J. E. Ennis, Lyons, *Treasurer.*

I wish to give notice that by new arrangements, made last winter by the railroad companies, persons wishing to attend this meeting are requested to send me their names so the railroad company may have time to print tickets, and have one sent to each person who wish to avail themselves of reduced fare, before they leave their homes.

The public are invited to attend. Papers in the eastern part of the State please copy for the good of the cause.

SUEL FOSTER, *Pres't.*

Muscatine, May 20.

CATAWISSA RASPBERRY.—The Massachusetts Horticultural Society's Fruit Committee say "the Catawissa is one of the most tender and highly flavored of any on the list, and by proper treatment can be made to yield such a bountiful crop in September, when all othersmall fruits are gone, that it deserves a Place in every garden. For a full crop the canes should be cut back nearly to the ground in April, and the late crop will be upon the new growth."

RUSTIC NAMES FOR FRUIT.—The variations and corruptions of the name of the *Fallawater* apple are somewhat amusing, the following, well known but not all found in books, being some of them: *Falwalder, Fornwalder, Tulpehocken, Brubacker, Fall de Walldes, Polly Wholloper, and Molly Whopper!* The real name of the apple referred to above is *Follen Walder or Fallen Wood.*

For the Western Pomologist.

Propagation of the Cherry.

The Morello for a Stock—Sprouting up—Suggestions on Raising Seedling Cherries, Numbering Grapes, etc.

MARK MILLER, *Dear Sir*:—It is only by adding "line upon line" according to order that we prevail on the trial even of that which to us seemeth good, and it is therefore, that seeing the remarks of Mr. James Mathews in the POMOLOGIST for March, relative to Morello stocks, for the working on of better sorts of the cherry, that I desire to strike that harp-string just once again and to say that his remarks relative to the sprouting of the Morello are, I think, based only on an experience with trees grown from suckers. I know of many seedling Morellos, and I do not know of more than one or two such, that have thrown up suckers or sprouts, and those were induced by reason of a plow and cultivator being run in and among them, and breaking of the surface roots. Again, as the season of ripe cherries is soon to be once more with us, let me now suggest and urge Western fruit-growers to procure seed of some of the best varieties, such as Louis Phillip, Donna Maria, Belle Magifique, Dauphine, etc., and plant with a view to new and improved hardy sorts, as well as for stocks on which to work others. One more line, and that is, do pray ask Mr. Mathews not send out the grape he now calls "No. 13," and which you have figured, without first applying a name. We have already had so much of the numbering business through Mr. Rogers that I think all are tired of it, and I respectfully suggest a change. If a name be attached, and afterward the variety prove identical with another of Mr. Rogers', it would surely and truly add to our list of synonyms, but would not then make it any worse than a number, while if it be a distinct sort, then the applied name would attach and the variety be very unlikely to obtain any synonym.

F. R. ELLIOTT, *Cleveland, Ohio.*

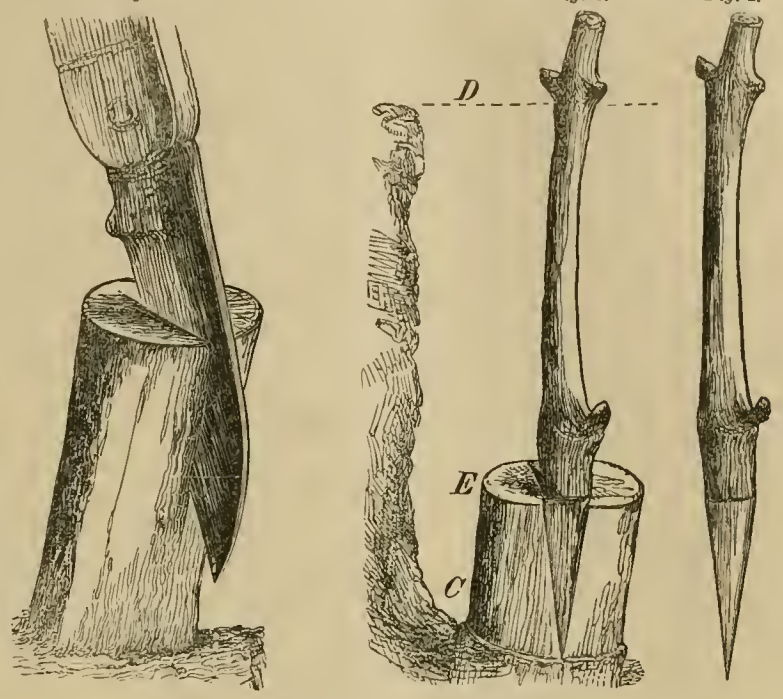
Fruit Prospects in Lincoln County, Kansas.

ED. POMOLOGIST:—We have suffered in agriculture for want of rain; had a fine shower the 22d; vegetation pushing rapidly now; the high winds on the 9th and 10th inst. done considerable damage to fruit—especially grapes. Prospect for apples good; peach and cherry light; black and strawberries full crop, also Doolittle raspberries; Philadelphia and purple cane killed to the ground by the winter.

ADAMS, *Garnett, Kan., May* 24, 1870.

CRANBERRIES IN WISCONSIN.—Berlin Wisconsin, appears to be the center of a large fruit trade. The apple crop of 1869, within a radius of six or eight miles of the town, is estimated at fully 7,000 bushels.—Between three and four thousand barrels of cranberries were also shipped from that point.

Fig. 1. *Fig.* 3. *Fig.* 2.



EXPLANATION OF ILLUSTRATIONS.

FIG. 1. Manner of splitting stock, showing knife drove full depth.
FIG. 2. A graft natural size and length sloped ready to insert.
FIG. 3. Graft inserted and the earth removed. B to C showing the onter bark taken off the stock and cion as far as inserted; D showing the earth line when filled up and completed.

Grafting the Grape.

NUMBER TWO.

In our former article we gave our method of planting the grape in *early spring.* We shall now give other reasons It sometimes happens that we are not ready to graft in early spring, by delay in procuring scions by mail, or otherwise, until the vines have commenced to bleed too freely.

Save your scions by putting them away in some cold place, like an ice-house, and keeping them there until ready, so as to keep the buds from bursting.

Then, after your vines have made growth, and the leaves are about two inches in diameter, cut them below the surface of the ground, and graft them as before mentioned, and treat in like manner. Vines so grafted will not make the same growth as in early spring, but it is much better than to wait until another season.

If your early spring grafts do not grow, the stocks will throw up numerous sprouts or suckers; let *one* or *two* sprouts grow, and keep all the others off. These sprouts you may graft in June or July with *green grape wood*, fresh cut from your growing vines, in the following manner: Select short-jointed growing wood of any size, when the buds are just about bursting from the axes of the leaves, strip off the leaves immediately, and cut your scions of one or more buds in length, and graft the suckers above mentioned under the ground, as previously described, except *do not take off the bark.* You may split or cut the stock clear through, as in common cleft grafting. Tie loosely, or pack the earth up firmly and omit the tying; shade the grafts with a piece of board or shingle stuck in the ground, to prevent rapid evaporation. These grafts require the same kind of after treatment as the other spoken of.

This method of grafting the grape we have not heard described, but we have tried it, and know it will succeed. Yet it requires some skill and a sharp knife to cut the scion and split the stock.

We consider it a valuable method of increasing our stock of new varieties. To avail ourselves of this method of grafting we will have to prepare the stocks by cutting them off below the ground in early spring to get your suckers to graft.

We will have sometimes to wait with patience for our grafts to grow, as they are often very slow at starting. You can at any time dig down and examine the grafts and see if they are alive; granulation is slow at commencing, and will take place along the edge of the stock and graft where they meet, and the outside bark prevents or delays it. It is on that account and the proper adjustment of the graft, that we *remove* it on the *mature cane and graft*, but on the *green wood* it would be an *injury.* This you can test for yourself by a trial, and cuttings which will hardly grow can be made to do so by removing the bark from the lower ends. The soaking, heeling in, and the various methods of cutting in the *fall*, storing away the grape cutting to prepare them for growing, can be more quickly accomplished by removing the bark. Fall grafting, from trial we know not to be advisable, and facts can be given to show it a failure. We should like to hear from those who have succeeded.—[ASST. ED.

Viniculture & Wine Making in California.

The San Francisco Commercial Herald and Market Review has a very interesting article on this subject, from which the following is condensed:

It is said that although the vintage of the past year has proved in many parts of California a partial failure, the number of vines set out has been larger than ever before, the disposition to plant having become very general among all classes of land owners. Not having the exact figures the increase is estimated as ranging from four to five million vines, the whole number now growing in the State approximating forty millions. Of these about three-fifths are bearing—two-fifths being from six to eight years old, giving them the requisite age to bear freely. At first the Los Angeles or California variety—more commonly called the Mission grape, was most generally planted. It is a hardy plant and a sturdy and prolific bearer, the fruit being small and sweet, but greatly inferior in flavor, as well as in size and in wine-making, to most foreign varieties. As cuttings of the latter can now be procured, and they are for every purpose so much more valuable, but few of the Mission grapes have been planted of late. Some of the latter are also being grafted with the foreign varieties. Some of the interior regions are found better adapted to viniculture, than the richer lands and more humid atmosphere towards the sea. Owing to the greater heat during the summer, the grape grown in the former locality contains a larger percentage of saccharine matter, while it is notorious that the vine ever finds in the poorer varieties of soil a genial home.

The shortness of the grape crop, though not so great as was feared early in the season, was still very marked, the yield amounting in some localities to less than half, and aggregating the State through, a half less than that of preceeding years. The causes of this deficiency have been variously assigned to mildew, to the disease called odium in France, to an overbearing of the vines the preceeding year, and finally to their early flowering, which occurred two weeks sooner than usual, a high wind having during this period blown off the tender blossoms; the last named being no doubt the most efficient cause of harm, as neither mildew nor the odium have as yet prevailed to any extent in California, except in Sonoma Valley. The flower of sulphur has been used as a preventive of the two latter—two applications of 20 to 25 lbs. each per acre, are considered sufficient.

The falling off in the grape crop has advanced the price of fruit, the ruling rates paid the vine growers having been ten to twenty per cent. higher than in ordinary years. So, too, the dealer is now obliged to pay from 40 to 45 cents per gallon for white and red wines after the first fermentation, which one year ago could be bought for 30 cents per gallon.

A notable feature in the wine trade is the increasing quantity made from foreign varieties of grapes. The first of these in any quantity were imported by Col. Haraz thy. They have found their way into all parts of the State, and are now coming generally into bearing. The general term, California wine, no longer serves to express the different qualities of this article now produced in the State. With the manufacture of so many new kinds, the employment of additional terms has become necessary, our enlarged vocabulary embracing the names of the Reisling the Muscat, Sherry, Maderia, Burgundy, Malaga, Cucomungo, Zinfindel, Frontignan, the Chasselas du Foye, and other favorite and even famous brands, besides the Angelica and some other wines bearing names originating among ourselves. From the California grape we manage to make Claret, Port, Sherry, Angelica, Champagne and Maderia wines, besides a white wine of the Hock variety. Of the choicer grapes, we are coming to have a great diversity, not less perhaps than fifty kinds being now under culture in the State, all marked by greater or less differences, and all entitled to preference in some respects—the varieties, as a general thing, esteemed most valuable, either for wine-making or table use being the Reislings, Zinfindel. Frontignan, Chasselas, Alicante, Pineaux, Verdelho, Red Gramina,, Black Hamburgh, Isabella, Flaming Tokay, Muscat, Linto and Catawba. It is said that any one of these grapes is capable of being made into several varieties of wine. according to the treatmeut and process employed, some descriptions being largely used to impart bouquet and flavor to others. There are three vine growing departments in California, the products of which are marked by well defined and easily recognized differences. The first consists of the counties lying around and adjacent to the Bay of San Francisco. Here many of the vineyards are planted on clay, growing a grape that yields an acid wine, suitable for Claret, Hock, Sauterne, etc. Grapes raised in the southern counties of the State make good Port, Angelica and other sweet wines, sprightly, but not so rich in aroma. The third division composed of the foothills of the Sierra Nevada, embracing the gold-bearing belt of the State, is the most favorably conditioned for grape-growing, as regards soil and climate, of any portion of California. The grapes of this region being well flavored, and abounding in saccharine matter, make good dry wine, such as Madeira, Sherry, Burgundy and Teneriffe, as well also as Port, and what are known as German wines, all of which are distinguished for both their aroma and bouquet.

With this more extensive culture of the improved grape, with more care in the management of vineyards, and greater skill in making wines, the latter are growing rapidly in favor both at home and abroad, it now being conceded that California can produce as good natural wine as any other part of the world, only age and careful treatment being required to render it equal in every respect to the best produced in older wine-growing countries. The wines made in former years were not so good. This was owing to want of experience, a poorer class of grapes, often grown on unsuitable soils, and on rich, alluvial lands, the juice had an earthy taste. Besides, a general, and not altogether unjust prejudice grew up against California wines. This feeling, however, is fast abating, many trials having been made of late in which certain wines have been pronounced by experts equal to the product of some of the most famous of the wine-growing districts of Europe. The extensive planting of superior vines is expected to preserve, and even enhance the good repute in which the wines are now held. The gain in this direction is seen in the fact that city vinters are paying fully srventy per cent. more for wines made from these choice varieties than from the Mission grape, while the prices realized for the former kinds, especially those preferred for table use, are often much greater. Some of the growers of foreign grapes have the past year netted profits varying from $400 to $700 per acre, the average profit on an acre of Mission grapes being from $60 to $70, and rarely ever exceeding $100. While the current price of wine from the last vintage of the Mission grape is 40 cents per gallon for white, and 45 for red, wholesale, that from a mixture of foreign and Mission grapes sells for 60 to 70 cents per gallon, Zinfindel and other choice brands for 70 cents, and Alexandria Muscat for $1.

It is also said that while the foreign vine yields a more luscious and valuable fruit, some varieties are more prolific bearers. The Mission grape affords from 300 to 500 gallons per acre, varying in different sections, while the yield of the improved varieties is from 70 to 100 per cent more. In addition to this quantity of wine, from fifteen to twenty gallons of brandy can be made from the residue of the pressed grapes, from each acre of land. The average annual yield of grapes to the acre, varies with the soil, climate, variety of vines, skillful culture, etc., ranging from 6,000 to 12,000 pounds per acre—as high as 20.000 pounds being sometimes obtained. This is said to be about double the yield common in the Eastern States and Europe.

To render the wine more popular, it is said it must be made cheaper; at present, one year old wines cost from 60 to 80 cents per gallon. Various plans have been suggested, of which close planting has promised well, and it is said is now growing in favor; the vines are set four feet apart, instead of eight, the usual practice. Close planting is preferred on higher soils, while upon rich soils the vine is more luxuriant and requires greater space.

For some years there was great difficulty in producing good wine in California, owing to want of good grapes and of skillful manufacturers and wine-dressers; but this is now changed; choice grapes are grown and well managed, and many pure wines produced. Excellent champagne is made, also sparkling wine of superior excellence, while great improvement has been made in the manufacture of red wines. The wines, such as they are, are generally the pure juice of the grape, uncontaminated with sweetenings, flavorings or coloring matter.

As to the quantity made, it is said the product of 1869 will probably not fall short of 5,000,000 gallons, as against 7,000,000 in 1868, and 4,000,000 in 1867. There was less brandy made from grapes last year than during either of the two preceding years—the quantity made in 1869 being estimated at 200,000 gallons, as against 400,000 in 1868, and 300,000 gallons in 1867.

Viniculture is rapidly increasing, and it would not be at all surprising if the amount of vines now growing should be increased by a fifth or a fourth during the next five months, making the new planting some eight or ten million vines. The growing popularity of the vines at home and abroad, the increasing use of grapes as an article of food, and the large profits generally secured, are inducing people to engage extensively in this business. It is now clearly established that the soil and climate of California are better adapted to viniculture than those of any other country in the world. The grape grows and produces in almost every part of the State, and with the least possible care. The vine takes root readily, bears early, and is apt to be prolific. It suffers but little from disease or meteorological causes. It grows with a sturdy, self-sustaining stem, not generally requiring the support of stakes. The soil being new, and abounding in volcanic mould and other elements grateful to the vine, needs no manure. It yields about 100 per cent than in most other countries. In the second year after grafting and the third after planting, it begins to bear, and in six or eight years is producing its full complement of fruit. The berry rarely ever mildews or suffers from frost. But once has there been even a partial failure of the crop, while the fact of there being vineyards still bearing as freely as ever at the age of 70 years, sufficiently attests the longevity and vigor of the vine in this State.

Here, too, the vintager has ample time for gathering the grape, which, owing to the warm, dry weather, may be left on the vine for weeks after fully ripe, without receiving special harm. The warmth and

evenness of the climate causes fermentation of the vine without artificial heat. For the same reason, coupled with the dryness of the atmosphere, promoting evaporation, the wine matures rapidly—three or four years enriching and mellowing it as much as eight years do in Europe.

Instinct in Vegetables.

The root constitutes the plant's mouth. It terminates in a little sponge. The sponge drinks up the moisture from the surrounding earth. A simple experiment proves that whatever an amputated branch may do for an hour, the mouth of the plant is necessary to its permanent vitality. Two plants are placed for this purpose, side by side, in contiguous vessels. The roots of one are in water or moist and fruitful earth, while a layer of dry sand above surrounds the stem. It flourishes. The roots of the second are in dry sand, while the water or fruitful earth surrounds its stem. It dies. Indeed, one need not try such experiments. Nature has demonstrations quite as striking. Every boy has seen in the woods the roots of some tree planted by the birds or the winds in the crevices of a rock, wandering down the sides of the great boulder in search of nourishment. Dr. Davy tells of a case in which a horse-chestnut, growing on a flat stone, sent out its roots thus to forage for food.—They passed seven feet up a contiguous wall, turned at the top, and passing down seven feet on the other side, found the needed nourishment there, which their own barren home denied them. Thus closely does the instinct of vegetation imitate the wisdom of the animate creation. In another instance, narrated by Malherbe, an acacia threw its roots across a hollow of sixty-six feet, to find its labors rewarded by the discovery of a well of water in which they plunged, and from which they drew the food it so much needed. What strange sense drew them toward the water rather than toward the rock or the sand?

A yet more singular instance of this search for food is narrated by Wallace in is "Malay Archipelago."

A seed had been dropped by one of nature's husbandmen, a bird, in the decaying trunk of an old tree. It sprouted, put forth roots, branches, a little stem. But its roots in vain sought nourishment at the breasts of the dying foster-mother. At length, abandoning all hope of support from her, they pushed out from home to seek a living.—They dropped to the ground, a distance of sixty or seventy feet, and fastening there, succeeded in securing an independent livelihood. As time passed on, the old trunk died, decayed, disappeared. The new tree remained suspended, as it were, in mid-air, the roots proceeding downward and the branches upward from a point about equidistant between the two.

It is not thus alone that the root exhibits its intelligence. It displays equal sagacity in selecting from the soil only those elements which its own plant requires. Sometimes it errs, and drinks in a deadly poison. But its native instict is more rarely at fault than the supposed superior wisdom of man. Trees rarely eat unwisely. They are never guilty of gluttony.

Yet if the root be the principal feeder of the plant, the chief source of supply for its marvelous circulation, it does not alone fulfill this office. The leaves also absorb moisture. "In the burning days of summer," says M. Pouchet, "I have found carpets of ice-plants on the most arid rocks of Greece. Although it had not rained for a month, these plants displayed a remarkable freshness, and their leafage was none the less covered with a coating of icicles."—*Harper's Magazine.*

Of What Sponges Consist.

The common washing sponge is still considered by many naturalists as a vegetable species, and in fact most people look upon it as of vegetable growth. Still, it seems now to be definitively established that it belongs to those low forms of animalculæ that are comprised under the term zoophytes. "Will you make us believe," here you exclaim, "that this fibrous net-work, in which one is unable to detect the least indication of any thing that reminds us of animal life, is not a moss or something like it?" Exactly so. However, the sponge which you use in your daily ablutions, and which forms one of the most indispensable articles of the toilet, is not the animal as it lives and thrives, but only its horny substance, its skeleton, if you like to call it so. When cut loose from the submarine rocks on which it is found at considerable depth, the sponge presents itself to you as a black jelly-like mass, which, when left in the air for only a few days, will give off a most disagreeable smell, originating from the gelatinous part in question. In the natural sponge, you have not one single individual before you, but a regular colony of animalculæ. The elastic, horn-like net-work of your toilet table is then impregnated to its innermost parts with a slimy substance that is penetrated throughout by fine capillary tubes, not visible to the naked eye. Upon examining this curious being further, exceeding cilia (eye lashes) will be discovered. They project around the entrances of the pores, and by their motion produce a current which, in passing through the numberless tubes, leaves behind whatever they may need as food. The horny net-work is probably only their secretion, like the house of the snail. But that the sponge is of animal origin is now proven by the discovery of spermatoza and embroys in the interior, as well as by the composition of the fibrous elastic part itself, which contains one of the constituents of silk and spider's web.

In order to prepare it for use, it is first left in the air for a short time, until the gelatinous part is decomposed, then the mass is washed in hot water, and afterward in a bath of dilute muriatic acid. The toilet sponges are bleached by means of chlorine and hyposulphite of soda. The so-called wax sponges, that are used by doctors for dressing ulcers, are purified sponges dipped into fluid wax, and then pressed between hot plates.

The French and Austrian governments have lately commenced to rear sponges artificially—the former on the shores of the Mediterranean, the latter on the coast of Calmatia. The cultivation is said to be perfectly successful, and to yield large profits.

Manufacturer and Builder.

THE JAPAN PLUM.—A Louisiana coarespondent of the *Rural Carolinian*, gives the following account of this tree and fruit:

"Throughout Southern Louisiana there grows an evergreen fruit tree similar to the green bay, with long, thick, coarse leaves and grao body, resembling the maple or sour wood of the atlantic States. This tree bears in clusters—from four to twenty on the extremities of its limbs—a pear-shaped fruit, averaging about the size of a 'lump of chalk,' i. e., smaller than a guinea hen's egg, that is perfectly yellow when ripe, has flesh more resembling a yellow apple than a plum, and in the center, two, three, or four small kernels, about the size of hulled pindars, and perfectly slick. This tree blooms in November, the fruit begins to ripen in March, and continues ripening until June, or even July. Through all these months the trees present tempting baits to the lovers of good fruit. The tree is a very hard one, and a sure and prolific bearer. It is said to have been introduced into Louisiana by Commodore Perry, on his return from his famous Japan expedition, and hence is called the Japan Plum. The purpose of this inquiry is to learn whether this fruit is known elsewhere in the South, or whether it has ever been transplanted into any other of the Southern States with success. Once climatized into the Atlantic States, nurserymen would find it a valuable acquisition."

Effect of Forests on Health.

It seems to be generally understood among scientific observers, that forests, and even a few rows of trees, often have great effect in checking the miasmatic vapors. It has been observed that a screen of trees in certain localities in Italy, protected the inhabitants from fevers which were prevalent upon the other side of them. Certain commissioners in Tuscany advised the planting of three or four rows of white poplars to intercept the currents of air from malarious localities. Lieut. Maury believed that a few rows of sun flowers planted between the Observatory at Washington and the Potomac marshes, had saved the inmates of the Observatory from the intermittent fevers to which they had been liable, and large plantations have been planted in alluvial soils in Italy with favorable results in preventing the spread of noxious exhalations from the marshes.

The uniform temperature and humidity of forests, except in tropical climates, are considered favorable to health. Even the great swamps of Virginia are found to be healthy both to black and whites until portions of forests are felled, when by rapid decomposition they become insalubrious, and even dangerous.

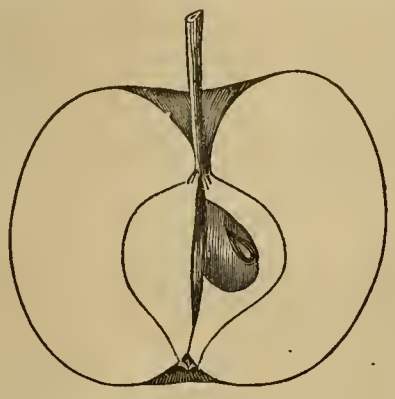
Upon the whole, it would seem that for comfort, for fertility of soil, and for health, as well as for convenience, economy, and last, but not least, the beauty of the landscape, we ought carefully to cherish our native forests and encourage artificial plantations.—*Ex.*

Hardy Apple Stocks.

The season just passed has been very destructive to one and two year old trees by root killing. The hardiest kinds, such as the Crabs, and the Duchess of Oldenburg, root-kill the worst. Why this is so does not appear, but such is the fact; probably owing to the engorgement of the cells or sap vessels in the root after the top has gone to rest. The tender kinds top-kill, while the roots remain sound and start from the collar; just the reverse is true of the Crab and Duchess. Thousands of my yearling Transcendants and Marengos have their roots blackened and dead below the splice, and are thus lost, while the two year-olds, such as I send you, that have thrown out roots above the splices from the crab scion are saved by the hardiness of these roots which, though near the surface, are perfectly sound, while the roots of the stock, much stronger and deeper in the ground, are frozen to death.

Such facts show that the Wisconsin Horticultural Society did a wise thing in recommending Siberian seedling stocks for root grafting. These stocks will doubtless become a desideratum in avoiding such wholesale slaughter of young nursery trees as has been experienced this winter all over the West.

The perfect hardiness of the roots of young trees under the ordeal of last winter's freezing, also shows the necessity of the Siberian sorts for the extreme North, as well as their reliability everywhere for stocks, and for fruit that will fill a large space, in all seasons for various purposes.—*C. A. Marengo, Ill., in Western Farmer.*



For the Western Pomologist.

Hewes' Crab.

The exact line of distinction between the common apple (*Pyrus Malus*,) and the Siberian crab apples (*Pyrus Baccata*), is often hard to define. Hewes' Virginia Crab, is probably, botanically considered, not to be classed with the crabs, and the same may be said of several apples known as crabs. But however classed, the Hewes', for its practical uses, stands well up to the head of all the apples to which the name of crab has been applied. For the making of bottled cider and sparkling champaign it has no acknowledged competitor. Were it not for its small size it would also have a fame as a culinary apple; as sauce, mince pies, etc., made from it have a rich vinous flavor peculiar to this apple. The tree is sleuder and twiggy in nursery, but becomes a wide spreading, loug lived, and immensely productive tree in orchard. The apple, in color, is striped with a dark dullish red upon a yellow ground.—Season, November to January. Worthy of having a place in every prairie orchard of Central and Southern Iowa.

JOSEPH L. BUDD, *Shellsburg, Iowa.*

Pomology in Wurtemberg,

C. Schickler, president of the Horticultural Society "Flora," sends to the department of Agriculuure the following statement relative to pomology in Wurtemberg:

Wurtemberg may he called one of the largest fruit growing countries in Europe. In very good and prosperous fruit years, as will happen once or ottener in every decennium, (1860, 1864, 1869,) the crop amounts to from three to four hundred weight of fruit for every head of our population. The very perceptible saving in cereals and other provisions during such years reduces their prices increases the export, and has caused our farmers' adage: "*Cheat times come out of the wood.*"

Our fruit cultivation pervades every district. The orchards increase in number and size every year, not only in the river valleys but on the hill slopes and mountains, so that you may now see fine and remunerative orchards two thousand and two thousand four hundred feet above tide-water, where it was formerly thought that no fruit could prosper.

The most fruitful sections are found along the shores of the Nectar, north of the Alb, and generally on the northern and northeastern slopes of the hills, which prove most propitious for fruit.

According to official statistics, as far as obtainable, there were in Wurtemberg during the year 1852, of seed fruit, 5,000,000 trees, with a yearly crop of 8,000,000 hundred weight of fruit; and of stone f uit, 3,500,000 trees, with 2,000,000 hundred weight of fruit Since then the number of trees has increased very much. In some districts there are from eighty thousand to one hundred thousand fruit trees upon a square mile. The city of Stuttgart counts upon a horticultural area of five thousand four hundred and forty-five acres, about one hundred and ten thousand fruit trees. The crops in different years vary from 590,000 to 19,400,000 sei, (three sei per hundred weight,) and as the price per hundred weight varies between one and three thalers, gold, (about one dollar to three dollars of our currency,) the average crop of fruit represents a value of six to seven millions of thalers.

The greatest danger to fruit crops lies in the spring frosts during the blooming season; yet as this season varies nearly four weeks in the different sections, it is easily understood that frequently one county has plentiful crops, whilst another has a failure, but general failures are rare. For the same reason it is evident that the warmest districts are not the most favorable for fruit cultivation, as the earlier the time for blooming, the greater is the danger of frosts; and for the same reason it is exceptional when good fruits and wine crops are produced the same season, as the former prospers the best under late vegetation and a wet summer, while wine requires early vegetation and a dry and warm season.

The yield of cider and dried fruits is considered with us of great importance, but table fruit is also extensively cultivated in some sections, *i. e.*, "Rems hal," "Neckar shal." The apple crop is the most useful of all. There is also some export of this crop, as well as of fresh cherries into Bavaria.

The cherry tree is among the stone fruit most cultivated in the valleys of the Alb and Rems. The prune tree (Zwetschenbaum) is very common all over the country, and yields the most valuable fruit for drying. The year 1868 abounded in all kinds of stone fruits, especially prunes. The walnut tree (English walnut) prospers most on the slopes of the Alb, and yields good crops and fine cabinet wood. Peaches and Apricots are raised in vineyards and gardens, in the former as standards, in the latter as wall fruit.

A great advantage and ornament is derived from the planting of fruit trees all along the roads of the country, the trees being mostly owned by neighboring farmers.

To promote pomology there are several nurseries, and in the vineyards there are raised a great many young fruit trees, yet the demand is greater than the supply, and there are every year great quantities imported from Bavaria, Baden, and France.

The tree fairs every spring in Esslingen, Rentlingen, Goeppiagen, and Stuttgart are interesting and peculiar features of Wurtemburg. The prices of young trees vary considerably. Trees which, from 1848 to 1852, sold at six to ten kreutser (three to five cents) each, now sell at one to one and a-half gulden (thirty to forty-five cents.) The average price of young apple trees is forty-two kreutzer (twenty-five cents) each; pear trees forty-eight kreutzer, (twenty-eight cents;) cherry or prune trees eighteen kreutzer, (ten cents,) varying with the quality of the tree.

Some years ago a school for pomology was established, which proves of great value.

The greatest portion of the fruit crop is used for cider, the favorite beverage of the farmer. This cider keeps very long, if made of certain species, as, for instance, the orange pear, wax pear, roast pear, sugar apple, Borsdorfer apple, Reine-Hen apple, &c.

In unfavorable years, and even in average years, during the last decennium, large quantities of fruit have been imported from Switzerland, Baden, and Hessen, to answer the steadily increasing demand for cider. Esslingen alone produces in good years 10,000 eimer, (800,000 gallons,) mostly of sugar apple. A sugar apple tree is known to have yielded from eighty to one hundred sei (twenty-six to thirty-three hundred weight) of apples, at a value of 600 to 1,000 gulden, (300 to $500.)

The industry of distilling liquor from cherries and prunes (kirshengerst and zwetschengeist) is also lucrative and important.

Bladder Plums.

In No. 4, vol. ii, of the American Entomologist, is an article under the above heading, from which we make a few extracts, appending thereto my own observation in regard to the same, although it may not throw new light on the question. The article is from the pen of the Editor:

"For many years we have noticed in the middle of June on particular trees of our commou wild plum (*Prunus Americana*) that many specimens of the fruit were enlarged to thrice their usual size and were uneven and wrinkled on their external surface instead of being smooth and plumply rounded. On cutting into such specimens, they were found to be hollow and spongy inside, instead of solid and fleshy; and almost entirely detached from the exterior rind, there lies in the center the juicy white stone which is found imbedded in the flesh of the normal plum at this season of the year. On the closest examination, we could never detect in these diseased plums any tokeus of the operations of insects."

The Editor goes on to say he has received specimens from several sources, one from an Iowa correspondent in 1868, who does not specify the variety from which it was gathered, saying, "the disease commenced about four years ago, and has now taken almost entire possession of his trees. Hence it would appear that, besides the curculio, there is still another destructive pest which the unfortunate plum grower has to guard against."

"We can guarantee that this bladder-like degeneration of the plum is not caused by any insects. What then does cause it, if insects do not? We answer that, in all probability, it is caused by a peculiar parasitic fungus, which may or may not be identical with one which produces very similar effects in Europe. In the London periodical called *Science Gossip*, for August 1st, 1869, we notice an observation that bladder plums, which are described as being almost exactly like our American ones, are common on the sloe or blackthorn (*Prunus spinosa*) in England, and that they are said to he caused by a parasitic fungus (*Ascomyces deformans.*)—The fruit presents none of its ordinary succulent characters, the stone is not formed, and the ovule is more or less astrophied, while sometimes a second carpel is produced." He says specimens have been sent from Europe to a gentleman in St. Louis, and that in Europe "they are popularly known as 'fools.'" He also states: "But Dr. Hull, of S. Illinois, informed us some time ago that he had never met with them, and that he was entirely unacquainted with any such disease. Hence we infer that however destructive it may have been elsewhere, it has not yet made its appearance in Southern Illinois, and possible may never do so."

So much for the article in the Entomologist; I will now state my observation and experience. Some thirty five years since my father purchased the place whereon I now reside; in the garden were three plum

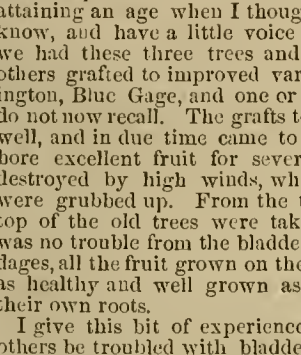
trees (*Prunus Americana,*) red variety, every year for quite a number of years these three trees blossomed as full, seemingly, as possible, the whole top being a perfect mass of bloom. Plums would set as thick as they could hang almost, grow to about half the size of peas and then they would begin to swell like a bladder or puff-ball, and the trees would hang as full of these bladders as they did before of the first set plums. Soon after the bladders began to swell they would commence to fall till the number diminished to about the quantity a tree ought to bear of plums to mature; the rest would swell till many of them would attain two to three inches in diameter, irregular in shape, of course; after a while most of them would fall off, but some would hang till the next Spring before falling, being dried to a black knot like. Being young at the time, I frequently used to pick them off after they were well swollen, and pick them open; all I usually found was spongy, hollow center, similar to that described in the foregoing article from the *Entomologist.* The trees stood partly under and between two pear trees, a Harvest and a Virgalieu; and in all other respects seemed to be healthy. After attaining an age when I thought I ought to know, and have a little voice in direction, we had these three trees and one or two others grafted to improved varieties, Washington, Blue Gage, and one or two others I do not now recall. The grafts took and grew well, and in due time came to bearing and bore excellent fruit for several years, till destroyed by high winds, when the trees were grubbed up. From the time the full top of the old trees were taken off there was no trouble from the bladder-like appendages, all the fruit grown on the grafts being as healthy and well grown as if grown on their own roots.

I give this bit of experience that should others be troubled with bladder plums they might take the hint and graft in different varieties, divesting of the major part of the old top at once. W. H. White.

Windsor, Conn., in Co. Gentleman.

A NEW CABBAGE.

The Filderkraut.—This is a new and very valuable cabbage. Mr. Bick, the most poplar and reliable importer of rare and valuable seeds, says: "I am acquainted with no cabbage that has given such general satisfaction as the *Filderkraut.* It is more conical or "sugar-loaf" in form than any cabbage I have ever known, is very solid, and keeps well. It forms a solid head even under quite unfavorable circumstances, and I do not think I ever obtained three plants in an acre that failed to produce a fair marketable head. I was induced to import it on the recommendation of one of my German customers who thought he would have to return to Fatherland if he could not get some of his favorite "kraut."



Orange Wine—Cellars for Wine.

We were indebted, during the fair, to our kind and esteemed friend, Rev. Richard Johnson, of Bayou Sara, La., for a few bottles of most delicious *Orange Wine,* and we take great pleasure in giving our readers Mr. Johnson's mode of making this truly delightful beverage:

Wine from Sour or Wild Oranges.—Peel the oranges carefully—cut the pulp across, and squeeze by hand or otherwise, so as to express all the juice. To *one* gallon of this juice, add *seven quarts* of soft, pure water, and *eleven* pounds of good brown sugar. Mix the orange juice, water, and sugar together, and strain. A five or ten-gallon keg, demijohn (or large vessel) may be used, according to quantity of juice. Fill the vessel to the brim or bung, reserving to every five-gallon vessel two bottles of "must," or fresh juice, (as prepared) to supply the waste of fermentation. When no more fermentation can be detected, (which will be about July,) lay a bag containing about a pound of sand on the mouth of the vessel. After a couple of months, cork or bung the vessel slackly, wrapping a cloth around the cork, and drawing it out occasionally to let off the accumulated gas. As soon as the weather becomes cold, cork tight, rack off in February, on a cold day, to another vessel or into bottles, and—drink!

Sweet Orange Wine is made in precisely the same manner, using only *eight,* instead of *eleven* pounds of sugar.

As wine cellars have heretofore been considered absolutely necessary, we append the following:

Wine Cellars.—A correspondent of the Cincinnati *Gazette,* writing from "The Plains," says that heretofore wine makers in the West have given great attention to the building of underground wine cellars, but it now turns out that the construction of the cellars is an unimportant matter. Lately, the largest operators in the business have found out that better wine can be made by allowing the wine to ferment and obtain the requisite age in buildings above ground, than by the old and ancient process adopted in other climates totally different from that of California. This being the case, the expense of building extensive stone or brick cellars can thus be entirely dispensed with, and one heavy item of expense in wine making done away with, Thus our wine makers, by experience, in most cases dearly bought, are gradually becoming better acquainted with the the peculiarities of climate in the celture of the grape and wine making.—*South Land.*

Forests—The English Walnut.—It is said that the deficiency of forests in certain parts of California is at present attracting attention in that State, and the journals are pressing upon farmers the necessity of planting walnut, hickory, orange, and locust trees, asserting that the crops would yield a fair return for the expenditure. Thus a grove of 12,000 English walnut trees in Los Angelos county, one-fourth in bearing, is reported to yield an average of $30 a tree, or $112,500 in the aggregate. Besides this, it is asserted they would affect the climate beneficially. In Egypt, it is said, the construction of the fresh water canal from the Nile to Ismalia, caused an ancient, dried-up basin to be covered with vegetation and the trees, when grown up, changed the temperature of the air, and produced heavy rains.

Grape Culture in Canada.—The *Canada Farmer* speaks of a large increase of interest in grape culture in Canada. It states that in one township on the shore of lake Erie, the farmers clubbed together and sent off $800 in one order for grape vines.

CHIP BASKET.

Knives and Forks.—Powdered charcoal is the best thing to use in scouring knives and forks.

—The San Francisco markets receive about 6,000 pounds of strawberries daily, and they sell at from ten to fifteen cents a pound.

The chief of the Botanical Garden of Ghent is reported as saying that some of the leaves of the Victoria Regia in that garden have a diameter of nine feet, and that he placed 246 pounds of bricks on one leaf before any rent was shown.

—The world is a sea of glass; affliction scatters our path with sand and ashes in order to keep our feet from slipping.

A firm faith is one of the best of divinities; a good life is the best philosophy; a clear conscience the best law; honesty the only true policy; and temperance the best physic.

—There is no question so mighty, so transcendently important to the well-being of the human race as the question of Fruit.

☞To be able successfully to check the insect scourge, and eventually to destroy the more noxious kinds, it is necessary to understand their habits—the moth that lays the eggs, where and when to look for them, when the transformations take place, etc., and the remedies to be applied, to destroy egg larva, pupa, or adult insect.

Puffs of Preserved Paste.—Roll out, a quarter of an inch thick, good puff paste, and cut it into pieces four inches square. Lay a small quantity of any kind of jam on each; double them over, and cut them into square, triangle, or crescent shape; lay them with paper on a baking plate; ice them. Bake them about twenty minutes.

Green Tomato Sweet Pickle.—Scald and peel tomatoes whole; then scald in strong ginger tea. For 2 lbs. of tomatoes make a syrup of one pint of vinegar and one pound of sugar. Drain tomatoes and drop into the syrup and cook till clear. Add mace, cinnamon and white ginger. Have the tomatoes covered with syrup.

Rhubarb Vinegar.—The process for 10 gallons will be—take 25 ordinary sized stalks of rhubarb; pound or crush them with a piece of wood in the bottom of a strong tub; add 10 gallons of water; let this stand 24 hours; strain off the crushed rhubarb and add 18 pounds of sugar free from molasses, and a teacupful of the best brewer's yeast; raise the temperature to 65 deg. or 68 deg., and put your brews into a 12-gallon cask; place it in a position where the temperature will not fall below 60 deg. In a month strain off from the grounds, returning it to the cask again, and let it stand till it becomes vinegar. Perhaps some of our readers can furnish a better method.

Spiced Beef.—Chop fine the tough ends of two very large beefsteaks, and a piece of raw suet about as large as half an egg, season with pepper and salt, and a little dried summer savory; then add two well beaten eggs, with about half a pint of dried bread rolled fine, or as much rolled crackers, and a piece of fresh butter as large as an egg, make it into a long roll, with flour enough to keep it together, put into a baking pan, with dripping as large as half an egg, and water enough to keep from burning. Bake as you would a roasting piece of beef: when cold, slice thin for the table.—*Agriculturist.*

FLORICULTURE

Tree, or Standard Roses.

The Rose is too generally known as a straggling bush, unpruned and uncultivated, and comparatively few of our country readers, we presume, are familiar with the fine and striking floral effects of the *Upright Roses*, which are often formed of several distinct varieties budded upon one strong-growing, perpendicular stock, four or five feet from the ground. Skillfully managed, the tastefully mingled colors of the blooms on this *Rose Tree* form a very lovely object, and we commend the culture of these *petits arbres* to all amateurs.

The old *Manetti*, or "Dog Rose," has generally been used as the stock upon which the other varieties were budded; but, in strolling around the Fair Grounds, the other day, with Mr. Joseph Muller, (the gardener of the Association,) he informed us that the *Souvenir de la Reine d'Angleterre* promised to take the place of *Manetti* entirely; being a very strong and upright grower, and free from the *Manetti's* very bad habit of throwing up suckers.

Among the varieties which Mr. Muller has very successfully worked high up as Tree Roses, we noticed *Charles Margottin Souvenir du Dr. Jamin*, and *Marschall Neil*. This fine new yellow Rose surpasses even the *Chromatella*, or "Cloth of Gold," in richness and beauty, and is a very decided acquisition.—*South Land.*

Selection and Treatment of Roses.

The rose stands at the head of the entire list of flowers; and every home should be made beautiful and fragrant with them. To succeed in their cultivation, the inexperienced should observe the following considerations:

1. Instead of selecting varieties from the catalogues of nurserymen, which, because of glowing descriptions are perfectly bewildering, it is wiser to request some reliable person, who grows them for market, to furnish, according to his own judgment, a few varieties, embracing diversity of colors, which are strong growers and first rate bloomers.

2. While summer and climbing roses will grow in shaded locations with little attention, it is otherwise with moss, and also perpetual bloomers. These need kind treatment, and sunlight. They should stand in rich mellow soil, kept free from grass and weeds. And if the ground around them is covered with manure, in the Fall or Spring, they will repay the cost, by a more abundant yield of fine blossoms.

3. Close annual pruning will cause more new wood to grow, and consequently ensure a better show of flowers.

4. Roses budding on the wild root, grow freely and blossom abundantly. But they always throw up suckers from old roots that, because of vigorous growth, will overrun and destroy the cultivated part of the bush, unless constantly watched and kept off. Hence the inexperienced should always order bushes grown upon their own roots.

5. In summer, keep them free from the little slug or worm that works upon the leaves. In our nursery, we pick off and destroy all leaves they are found on. But strong soap suds can be applied to advantage.—*Cor. Western Rural.*

Room or Parlor Plants.

Eastern windows are preferable to southern ones, the sun is now too powerful, and the morning sun being more congenial than that of the after part of the day, even west and north windows are now better than those opening toward the south. Plants that become dusty should occasionally be put out during light showers, taking care not to drench them. Roses and geraniums should be kept very near the light, or they will lose color and become pale.

Re-pot or plant out such as require root-room. Keep hydrangeas in shady situations. Cleanse wood and foliage as early as practicable. A little pulverized wood charcoal on the surface of the earth in pots containing parlor plants, is always advisable, and by changing it two or three times during the season, it will be found to obviate bad odors, and to increase the thriftiness of the plants. When potted plants are placed in the ground some earth should be drawn up about the stems, so as to form a cone to lead off the excess of moisture. Very few plants that have been housed during the winter will stand the full sun in early spring and summer; therefore the warmest exposures should not be selected for them.—*The Working Farmer.*

A Comforting Use of Flowers.

Miss. F. Hudson writes: "A friend lost a little child. When my mother heard of it, her sympathetic feeling urged immediate action. The universal desire to assist or relieve the mourning family, which is always felt when such tidings reach one, was always hers. So she went to our beautiful cemetery and gave directions for a pile of evergreen boughs to be placed in the yard where the little one was to be laid. While this order was being executed, she procured several baskets of exquisite flowers and returned to the yard where the grave was already excavated. Under her direction it was then completely lined with spruce and hemlock boughs, the heap of earth taken from the grave was also covered with them. Then, with the assistance of a friend, mother arranged flowers amid all the green, literally lining the grave with flowers.—They were secured in their places either singly, or in tiny bunches by hair-pins. The effect of the arrangement was most beautiful, but its comparative effect still more so, when one saw and felt the difference between a bed of sweetest flowers, and the bare open grave. The earth used in the burial service being but a symbol, certainly the single lump softly dropped by our pastor fulfilled its purpose better than the ordinary unerring spadeful."

About Striking Cuttings.

Professional florists often throw much mystery about this operation, but it is a simple thing. For starting grape cuttings, roses, verbenas, geraniums, fuschias, try this method:

Get a box, say three feet long, two wide, and eighteen inches deep. Fill it half full of stable manure, pressing the same down with a fork. Pour on two buckets of water, then lay on a few inches of common soil, leaving four inches depth on the top for sand. Over this box put a glass sash. Let the first crude heat pass off before putting in the cuttings. After putting them in, keep the soil moist from day to day by watering, and by shading for a few hours at mid-day. When the slips have rooted (and this will be shown by the growth of leaves) give them more and more light and air.—*Rural American.*

Flower Seeds in Pots.

A few general rules are applicable to all seed sown in pots:

1. All pots and pans used for seed sowing should be well drained in the ordinary way; and, as fine soil is much employed in seed sowing, a layer of dry moss or of roughish soil should separate the drainage and the fine soil above.

2. The soil on the top surface of all pots, pans, etc., used for seed sowing, should be finely pulverized by sifting.

3. Good sandy loam may be taken as the basis of all soils used for seed growing, but it should always have at least half its bulk of finely pulverized leaf-mould, peat, or some vegetable soil in it, and fully one-fourth of the whole should be sand.

4. The soil should be made perfectly fine and firm in the pots, particularly in the case of small seeds.

5. All seeds sown in pots, frames or houses require shading during sunshine, and it is particularly necessary for the smaller seeds on the surface.

Mignonette.

This fragrant hardy annual is too well known to need any description. To obtain plants for blooming from December to February, a sowing should be made in July in the open ground, and the plants potted in September. The crop for March, April and May should be sown no later than the 25th of August; the plants of this sowing will not suffer by exposure to rain whilst they are young; they must, however, be protected from early frosts, like the winter drops.—The third crop should be sown in pots the last of February. Thus, by attending to the sowing of the seed at these three several times, and nursing the plants in a proper manner, this fragrant flower may be had to perfume the bouquet the year round—*Breck's Book of Flowers.*

Planting Roses.

In setting out my Tea and Bengal Roses I have cut them all down close to the ground, both those that I had kept dormant during winter and those that had come to me from propagating houses. It has been my practice in former years, and although my neighbors don't do it, yet while they have a few poor quite early blossoms, I find mine keep blooming, after they once commence, all the summer long, and so I believe it's the best way. In repotting roses there is really nothing better than good fresh turf loam, with, say, a fourth to a sixth of well rotted manure thoroughly intermixed.—*F. A. in Rural New Yorker.*

Covering Seeds with Grass.—A correspondent of the *Rural New Yorker* says:

"I once saw advice by Thomas Rivers of England, to use in covering flower and other small seeds the short grass from the lawn.—On this hint I acted with good results last year, and am now doing it again. I sow the seeds, pressing them nicely with a board into the fine soil; then I sift just a shade of clear sand over and cover from one-half to an inch deep, according to the delicacy of my seed, with the fine green grass cut from my lawn. As it dries and shrivels it becomes light and the seeds come freely.

☞A correspondent of the *Horticulturist* says that a fine low standard for hanging basket is the Chinese Primrose (*Primula Sinensis*) bearing white or crimson flowers. Soil—two parts garden mold, and one part sand.

Water the Bees.

There is no insect more fond of water than the honey-bee. In fact, water is believed to be absolutely indispensable to the successful operations of the hive. Water should at all times be near the bee stand' where it will be easily accessible, and at the same time not to endanger the lives of the bees by drowning, as in open troughs, pails, or tubs. Take either of the vessels mentioned, fill up with water, and cover with a piece of coarse canvass, such as comes around bales of sheeting, and you have a most perfect watering place for bees. The canvass should be made to rest upon the surface of the water. The water oozes up through the canvass, upon which the bees may light without danger of being drowned, as in open vessels.

For the Western Pomologist.

Do Bees Injure Fruit Blossoms?

The question is often asked, "Do you really think that bees in any manner injure the fruit by sipping the nectar or gathering the pollen from the blossoms?"

In the first place I will say, that I think that this idea of bees injuring blossoms of any kind originated with ignorant and superstitious people; and to illustrate, I must tell a story. I once lived near a lady of the above class, who in the spring was continually complaining that Gallup's bees were carrying away all her fruit blossoms, and that she should raise no fruit in consequence thereof But as it turned out, she raised an abundant crop in spite of the bees. It is but four or five years, since the inhabitants of Wenham, Massachusetts, decided that there must be no more bees kept within the town limits on account of their destroying the fruit blossoms. Any one would have supposed that the days of Salem witchcraft would have cured succeeding generations of the old Bay State of such ignorance and superstition, but it appears that it did not.

The facts of the case are—that instead of the bees injuring the fruit blossom or crop in any case whatever, they are an absolute assistance. So much so, that in the immediate vicinity of an apiary in some seasons, there will be an abundance of fruit, whereas in localities where no bees were kept there was comparatively little. Bees are a great assistance in fertilizing blossoms that otherwise (or left to nature) would not become fertilized, and the clover or buckwheat patch that produces the most honey produces the most seed invariably. The honey in the blossom, if not taken out by bees and other insects, would be dried up by the sun or washed away with rain, consequently would be a dead loss; but if we have bees to gather it, it is so much gain, not only to the owner of the bees, but to the fruit grower and the farmer. I would not accuse any one of ignorance or superstition, but will say this much. Any one who accuses bees of injuring fruit blossoms has not carefully investigated the subject. The old lady seeing the bees at work on her fruit blossoms supposed that they were carrying away the blosssoms entire, and so reported without making any examination whatever. The pomologist should certainly keep a few swarms of bees for the purpose of their assistance in the fertalization of the fruit blossoms at times when nature is at fault on account of a peculiar state of the weather.—*E. Gallup, Orchard, Iowa.*

Ventilating Honey Caps.—A correspondent of the *American Bee Journal*, believes that the caps of bee hives should be sufficiently ventilated to relieve them from a confined and melting heat, when the bees are storing honey in them in hot weather, and to carry off all dampness in cold weather; while at some other times, little or no ventilation. It is necessary, therefore, to have some method by which ventilation can be easily regulated. In the absence of a better plan, the following will be simple and effectual.

For ventilators bore four holes of one inch each in diameter, in the sides of the cap; cover these holes or ventilators on the inner side with wire cloth; and on the outside put on the ventilating button, made as follows: Take a strip of board, three inches long, one inch and a half wide, and five-sixteenths of an inch thick; make the ends oval, and cut away half the thickness of the strip or button clear across its width, and to the length of one inch and a quarter. In the center of the button bore a hole to receive a light, one inch screw, to hold it in place, and around which it revolves. To mount it, turn the halved side of the button towards the cap, and lay it horizontally and centrally below the ventilator, so that the upper edge of the former will come flush with the lower edge of the latter; drive in your screw, which should be very firm in the cap and somewhat loose in the button. Now turn up the halved end of the button over the ventilator, which will then be somewhat darkened, yet admit air freely, and be measurably protected against driving storms. With the other end of the button, the air can be entirely shut off, or regulated at will.

I have for many years used the device above described on some of my hives, with entire satisfaction.

Loss of Bees.—A correspondent of the *Ohio Farmer* writes: I have lost one thousand dollars' worth of bees this winter, on account of having them fly out to disgorge themselves. All of the fall bees died in old stocks, so what few remain are weak. Some of our bee men have lost all of their bees, some have one left who kept thirty or forty hives; we have the blues over our bees, but I for one will try to get agoing if nothing happens. I lost seventy-five Italian colonies. I have kept bees forty-eight years and never lost the same worth in all my life before.

The use of woolen gloves when operating among bees is objectionable, as everything that is rough or hairy has an extremely irritating influence on bees.

Bleaching Beeswax.

A correspondent of the Department of Agriculture, writing from New York, gives a convenient and simple process for bleaching beeswax:

"The yellow wax is first melted in a kettle, and then is dipped out into a long tin vessel that will hold two or three gallons, and which has a row of small holes about the diameter of a knitting needle in the bottom. This vessel is fixed over a cylinder of wood two feet in length and fifteen inches in diameter, which is made to revolve like a grindstone in one end of a trough of water two and one-half feet in width, ten to fifteen feet in length, and one foot in depth. As the melted wax falls in small streams on this wet revolving cylinder it flattens out into a thin ribbon and float off toward the other end of the trough of water. It is then dipped out with a skimmer, (that may be made of osier twigs,) spread on a table with a top made of small willow rods covered with a clean white cloth, and then exposed in this way to the sun until bleached.

Bee Miller—How to destroy it.

Much may be done in spring to exterminate the millers for the season from your colonies. The worms are in the hives; the eggs having been deposited there by the parent miller the fall before, they are kept alive by the animal heat of the colony. Early in the spring these worms, having done all the harm they personally can among the combs, being gnawed out by the bees, drop to the bottom board, and "cast about" for a place to weave their cocoon, from which they will emerge millers; and if females, capable of depositing, as it is estimated, forty thousand eggs each. As every one of these eggs may, under favorable circumstances, become a worm, and as there are four generations of them in a single season, it is easy to see why they so easily take possession of weak colonies.

A perfect remedy is found if the bee-keeper can destroy every worm about his hive in the spring. This is not hard to do, if every morning the hives are visited and the bottom board examined. There the worm will be found, and can easily be killed. If not found, as the day grows warm it will crawl into some crevice and "four generations of forty thousand each may be provided for!" If this is done for a few mornings when the bees commence to work and "clean house" in the spring, there will be no millers hatch about your own hives. Careless bee-keepers in the neighborhood may allow some to come to ooo, but the miller does not fly far from the place where it hatches.—*Ex.*

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Pomology, Gardening, Forestry, Horticulture, Rural Architecture, Bees.

Vol. I. DES MOINES, IOWA; LEAVENWORTH, KANSAS, JULY, 1870. No. 7.

MARK MILLER,
Editor and Proprietor, - - Des Moines,

J. STAYMAN, Leavenworth, Kansas.

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Seedling Apples.

We would call Mr. Suel Foster's attention to one fact, that when he wishes to criticise us that he reads with care and remembers what we say.

The right of a critic to misquote or force a meaning we cannot tolerate. When Mr. Foster undertakes to explain what he has previously said about the Kansas Queen apple by referring to what we have said as a foundation for his remarks, we say he is bound by candor, honor, and his own sake, as well as the public good to give *what we have said* instead of something else.

He says in June No. of the POMOLOGIST, "Of course I know nothing of the apple, I was only speaking of what Mr. Stayman said of it; and, as I thought, was placing too much dependence on the parent variety of its origin." "For Mr. Stayman said: It being a seedling of the Ben Davis is sufficient guaranty," etc.

Now, Mr. Foster, we would not say one word to mar your feelings, but in the spirit of friendship and kindness we must say that we have been writing about facts and not *fiction*; the above we have never said or even so intimated. By referring to our article in February No. of POMOLOGIST you will discover your mistake and of course correct it.

We would not feel much concerned about this particular article if there was not some important principle connected with it.

We have been for a number of years discussing this subject in the *Gardners Monthly* and other papers, and our views have become public property, and we do not wish to be made say anything contradictory to those views until first being convinced of our error.

In connection with this subject we would say that healthy and hardy offsprings must have healthy and hardy parentage, but it does not necessarily follow that they are *all healthy and hardy*, but it follows as a law of nature that no offspring can be more hardy and healthy than the parents. That the signs of these conditions are made manifest by particular characteristics as the color of *bark, leaf, flower, fruit and seeds.*

That there is a law of variation, variegation and degeneracy. These being fundamental principles we need never look or expect healthy and hardy seedlings from tender varieties. Had this law been fully understood we would not hear persons advocate that seedlings were always hardy. The fallacy of this doctrine we have fully shown many years ago by absolute facts, having over forty thousand apple seedlings of different ages killed, while many grafted varieties were not injured and others but slightly. Who has ever produced a healthy, hardy tree, from the seed of a tender, feeble variety. If this is a fact, which we fully believe, it is all a humbug to be experimenting and trying to raise valuable and desirable sorts from most of our common kinds. The field is a narrow one, confined to those only known to be very *hardy* and *healthy* and hybridization and crossing the only rational and scientific method of producing what we desire.

J. STAYMAN, Ass't. Ed.

For the Western Pomologist.

Hedge Fruit.

The celebrated Dutchess Pear was discovered in a hedge by the lady whose name it bears. The most flourishing and prolific apple tree on my farm is in the midst of a thorn hedge where it grew spontaneously without the least culture; whereas several have died which I bought of one of the most prominent nurseries in Maryland and planted here about 20 years ago, I have utterly failed to produce one crop of apples, and one-half the varieties not a bushel during the whole period!! Consequently I grubbed them all up this spring, having failed to notice any good result from the application of a cart-load of good barn yard manure to each, a few years since. The mistake I made was in planting them too deep, in a good, white oak soil, where a crop of fine timber had recently exhausted the potash from this alluvial soil, whereas on virgin soil, derived directly from the disintegration of granite and other feld-spar rocks, this succession of timber would not be injurious, except perhaps in reduplicating the insects which are peculiar to trees. Nevertheless, as I can now depend on an abundant supply of the substitute for wood ashes, I have planted on the same spot five peach pits at intervals of twenty feet over ten acres. These I selected from the largest peaches of a most flourishing orchard of four years' growth. Moreover, the pits from the white peaches are planted separately—all being open stones.

Now, I must beg through your columns, the opinion of some expert, (if such experience is not embraced in the editorial department,) whether it is probable that *any* advantage will be derived from the peculiarities of the seed as above—if I bud them from young trees of the most vigorous and successful varieties that the experience of this vicinity indicates? I hope to express my own theory with regard to the "comparative vitality of trees" at some future time. My own experience seems to indicate that a bud, or even a graft from an old tree is very unreliable, but my experience and observation is so limited that it may not only be worthless but injurious, except as indicating the great importance of soil plant food and original vitality over culture; also, the comparative invalidity of the usual objections to the hedge *form* of culture indicated on page 46, especially in view of the fact that in natural arrangement of all large *standard* pear trees, each limb *may* be regarded as the equivalent of a complete dwarf pear, and if so, it certainly has not one-seventh part of the room I allow my dwarfs, nor one-third the exposure to the sun; nor can it have as direct or abundant and exclusive a supply of soil food when compared with that derived directly through the quince near the earth.

DAVID STEWART, M. D.
Port Penn, Delaware.

List of Apples for an Orchard of one Hundred Trees.

The following list of Summer, Fall and Winter apples for an orchard of one hundred trees was adopted by the Leavenworth, (Kansas) County, Horticultural Society at its January and February meetings.

SUMMER.—Early Harvest, 11; Red Astrachan, 14; Summer Pearmain, 11; Benoni, 10; Sweet June, 20; Cooper's Early White, 24; Duchess of Oldenburg, 10.

FALL.—Lowell, 19: Maiden Blush, 20; Bailey's Sweet, 2; Early Pennock, 12; Autumn Swaar, 26; Smoke-house, 21

WINTER.—Jonathan, 17; Ben Davis, 21; Raules' Jannet, 16; Winesap, 32; McAffees' Nonsuch, 6; Willow Twig, 7; Hartford Sweet 1.

In presenting the above list of apples to to the public, we wish to make a few remarks.

It is the habit of horticultural societies to determine by a vote what varieties of fruit are worthy of general cultivation. The fallacy of this method of arriving at the value of any variety is so self evident that we hope to soon see it abolished.

To illustrate this fallacy, we will give an instance. At our State horticultural meeting in '68, the Jonathan was added to the list of apples worthy of general cultivation, with but few, if any, dissenting votes. At another session of our meeting an individual moved to have it reconsidered, on the ground that he had seen some apples badly specked and did not think it worthy of that place.—By an effort, he made the impression upon the inexperienced, that it was unworthy and it was rejected from the list by a vote of the society, although there were a number of persons present who had sufficient experience to fully warrant its retention.

This we considered at the time an unwarrantable outrage of ignorance and prejudice against experience and facts, which another year confirmed by the Society placing it on their list, and it was even acquiesed in by the person who moved its rejection. We notice the same difficulty at the Central Illinois horticultural meeting, in the *Prairie Farmer* On apples, Dr. Hull said he was opposed to making or having a list; one half of the society might grind out a list, which if submitted to the other half would be rejected. If the society would appoint a small, select committee composed of its most experienced men, then it might be possible to get a list that would be of some little value; but a much better way would he for the society to discuss the merits of varieties; this course would bring out information respecting them in different parts of the district. The facts so elicited could be published in the proceedings and would go for what they are worth. Should any one want a list, his best plan would be to go to some experienced cultivator of his own neighborhood and get the names of sorts that have succeeded on soil similar to his own. Such a selection might be valuable, whereas, a list made by the vote of the society, would apply to no special locality and would be worthless."

"Dr. Morse was satisfied that these remarks were correct but would recommend that new sorts be discussed." "Mr. Dunlap would not advise the making or voting on a list of apples. Let each give the result of his observation. Beginners could learn from the nearest experienced horticulturist what varieties would be best in their locality." "After these remarks, the society agreed to dispense with making a list, and called for remarks on varieties."

Never were remarks more appropriate than the above, and coming as they do from such distinguished horticulturists, they have important weight and should be duly considered,

We are happy to find that we are not alone in a similar move, but sustained by such high authority, which is some relief, knowing our views were not favorably received. Growing fruit is more than a conjecture or opinion. It is a fact, a science, and a realization.

Health, hardiness, early maturity, productiveness, versatility of character, can only be determined by a careful comparison of varieties under various conditions. This requires time, experience and close observation. He who has not had those opportunities is not prepared to give even a correct opinion, let alone facts. It is this, which produces the apparent discrepancy in the opinion of horticulturists; were they equally experienced under like condition, there would be but little difference in their opinions.

Self esteem, approbativeness and egotism often take the place of experience, and even dictate what varieties we should plant, how it should be done, and also their after treatment.

We have before us a list of apples in the *Kansas Farmer*, recommended for a farm orchard of 100 trees for northern Kansas. The individual attempts to give the proportion of each kind by first endeavoring to show his disinterestedness in the following quaint style. He says, "it has no tinge of interest or pride of opinion about it, two elements to be carefully guarded against in accepting the opinions of any one upon this subject." It is remarkable how the status of a nursery or orchard will affect the opinion of its owner upon the merits of a given variety of fruit. It is hard to condemn the big end of a nursery stock one has got ready for market—just for the public good; and a man will about as soon make a public expose of the faults of his child as of his pet trees," All this twaddle about nurserymen and fruit growers may gratify self esteem and approbativeness, but comes with poor grace from a person who has never grown or fruited one of the varieties in Kansas, or perhaps no where else, and who is unable to give the peculiar characteristics of the fruit and trees he recommends.

If tree and fruit growers are not competent to recommend varieties, how much less must the individual be, who has to depend upon them for the little he knows.

Would he condemn the opinion of such men as Meehan, Wilder, Downing, Elliott, Warder, Barry, Hull, Flagg, and many others, because they were either tree or fruit growers. It has almost become proverbial for those horticulturists to condemn defective varieties; and they show little mercy on those sorts they have spent years of toil and care and have proved unworthy. But let us see what this individual has to say who knows more of the capabilities and prospects of fruit growing in Kansas than any *ten men* in it. He says "a commercial orchard, set for the sole end of realizing the most money per acre from it, and a farm orchard set for the benefit and gratification of its present and future possessor, are quite two things. The first in Kansas would be limited to about *ten* varieties—less than more. The second will require, in addition to those almost as many more." As the list of apples given embraces more than ten, and is headed farm orchard, and a commercial and farm orchard "are quite *two things*," how does it come that 15 trees out of 100 are Ben Davis, which he says "is one of the poorest apologies for an apple that a prolific nature has ever produced." This of course must be granted to be correct, as it has "no *tinge of interest* or *pride of opinion* about it," and requires no effort of the imagination or wonder how he knows what a prolific nature *has produced.*

He recommends 15 Raule's Jannet, which he says "that if the trees are to grow and fruit uncared for and unpruned, it is better not to set them at all. To produce fine fruit, uniform in size and perfect in flavor, the tree tops *must* be kept open and severely pruned." How has he discovered this tree to be an exception to the general rule? When and where did he try this experiment? Of course it could not have come from a tree or fruit grower, or it might have some "pride of opinion about it."

By what method did he discover that Lady-finger (Kirby Red) was adapted to Northern Kansas? Did he ever find it growing there? Also, upon what evidence does he recommend Fall Pippin, Swaar, Rhode Island Greening, and Northern Spy? We herewith annex this list for the gratification of experienced orchardists, classed under its various seasons:

Early Summer.	*Winter.*
2. Early Harvest.	3. R. I. Greening.
3, Red Jnne.	5. Kirby Red.
	5. Rome Beauty.
Fall.	5. W. W. Pearmain.
4. Cooper's Early White.	5. Jonathan.

5. Lowell.
3. Maidens Blush.
2. Fall Pippin.
2. Bailey's Sweet.
3. Swaar.
3. Northern Spy.
15. Ben Davis.
15. Wine Sap.
15. Raule's Jsnnet.
5. McAffee's Nonsuch

In this list of one hundred trees for a farm-orchard, there is not even a succession of fruit from the commencement to the end of the season. There is not one-third as many early summer apples as there is fall, and there is a gap of nearly three months—from October to January—without ripe fruit in its season. It is very evident to any experienced horticulturist that the balance-wheel was thrown out of place, and the grist was ground out in hap-hazzard confusion, and the list is about as well adapted to any other place.

Had it been but an error of judgment, it might have been overlooked, but it was a prepared and deliberate attack on the motives of horticulturists, by an endeavor to shield himself under the cloak of "no tinge of interest or pride of opinion."

We have been induced to make the above comments in defence of our profession. Many of us have become grey, and have nearly spent a life time in the cause. To be assailed by a *youthful editor* who has lived but a few years in the State, it becomes our duty to defend ourselves, as well as guard the public welfare.

He who lives in a city and edits a paper pertaining to horticulture, where there are more than 5,000 close planted fruit-trees—many bearing—and he is unable to see or comprehend it until Dr. Warder illustrates the system on a blackboard, is certainly poorly qualified to dictate to the public on tree planting.—[Asst. Ed.

Col. Wilder's Alpine Crosses.

In a paper on Alpines last winter, we incidentally referred to Col. Wilder's curious crosses with Alpine and Virginian breeds of strawberries. In a private letter, with other things, we have some further account of them, which we know Mr. Wilder's love of the subject will pardon us for extracting for our readers:

"My seedling strawberries eight months from seed, are now in full bloom, and I can assure you that they are the most interesting experiments in crossing I have met yet, with Wilson with Royal Hautbois, crosses with Hautbois foliage and Wilson flower. Pistillate No. 60, crossed with Napoleon III, produces a noble truss of pistillate flowers. Napoleon III crossed with Hautbois, brings a new type of Hautbois, with very dark, round foliage and large flowers. Wilson crossed with Triumph, some plants are hermaphrodite and others pistillate. Napoleon III and Triumph, glorious plant with splendid trusses. Jucunda by Napoleon III, very promising, &c., &c. But what will you say to the fact, that some of the crosses by varieties by the Hautbois are regular mules? In addition, I have some forty pots more to come into bloom."—*Gardner's Monthly.*

Preserved Orange Peel.—As oranges are used, throw the peelings into a jar of hot water, which should be poured off and renewed every few days, and when a sufficient quantity have been saved, boil them in enough water to cover them until soft, and to a pound of peel put a pound of white sugar, boil fifteen minutes.

For the Western Pomologist.

Fruit in Buchanan County.

Growing the Peach Successfully—How it is Done. The Apple Tree Borer—Bark Lice—How to exterminate them—Small Fruits.

After a residence here of 13 years, I have become perfectly satisfied that northern Iowa is bound to be one of the best fruit growing regions of the West. The past year has been a decided success in the line of apples with me. I had the pleasure last fall (for the first time) of putting ten bushels of my own growth in my cellar. The varieties are the Swaar, the Roxbury Russett, Tallman's Sweet, Wine Sap, Romanite, and another variety not yet named. It has borne for the past three or four years and keeps good until May. I have several trees that have not yet borne. I have fully satisfied myself that the reason of so many diseased trees is the borer. One year ago, working around one of my healthiest looking trees, I thought there was some appearance of the borer, and I went to work and dug out of that tree eight borers. If I had trusted to appearances alone, I should have had a dead tree, and without knowing the cause. I might, as a thousand others had done, laid it to the rascally nurseryman as selling diseased trees. I then thoroughly examined all my trees and found this pest in all but my transcendent crab. I found them in wild plum and common crab. Now, my remedy is to watch faithfully, and if you find a trace of them go for them with a sharp knife, and *be sure to dig them out.*—What cutting you do won't injure the tree as much as the borer would, and when you get through a little grafting wax covers up the wounds and the trees grow and thrive. I last fall wound the trees at the ground with saturated paper, (coal tar) the same that is used in building.

I had one tree that had borne for three or four years, literally covered with bark lice. So thoroughly had this pest taken possession of it that two years ago I had no apples on it, and I concluded to experiment with it, and having one of Page's pumps, (every man that has a tree or grapevine ought to have one) I took a pail of water and soaked in it tobacco stems, and with my pump I once a week syringed it thoroughly. I commenced the last of May, and carried this treatment through July, and the result was this,—the tree grew and the lice did not appear on the new wood, and the past season I once more had a crop of apples.—As an experiment I think it done well and certainly did not injure the tree. It is worth trying.

The fruit crop I most admire and take the most pride in raising is peaches. Now some will say that they won't grow in this northern latitude, and by saying so so conclude. Well, I raise *peaches* every year.—Two years ago I had a bushel and a half on one tree. Last year not so many, but this year I shall expect a bushel or two *for sure.* It is just as easy to raise peaches as many kinds of grapes. I look upon raising peaches as a triumph over nature, and it is worth all the labor and pains to do it. My plan is as follows: Cut the tree off 16 inches above the ground, and all the limbs that shoot out below, bend down so that they will be no higher than the stump; tie a good stout string to a stone or stake and then around the limbs and hold them in that position; make all of the limbs grow in that position. Let the limbs bear the same relative position to the stump or body of the tree that the spokes of a wheel would to the hub if it was laid on the ground. About the middle of August, with a pair of pruning shears, trim new wood back from ⅓ to ½ of the new growth, and then when you cover your grape vines in the fall cover your tree with cornstalks or prairie hay, and leave it on in the spring until danger of frost is passed, or until the leaves begin to start and then uncover. When the trees come out in bloom the sight will pay for your trouble and the peaches will be extra. I have now followed this plan for three years, and know whereof I write. Let some of your readers try it and I will warrant a *sure thing.*

Last spring I washed all my apple trees with lye and it gave them a fine, vigorous and healthy appearance. I know that apples will grow in Iowa. It only requires care and labor, and plenty of fruit will reward the diligent laborer, while the slug-gard will continue to sing the old song that I have heard for the last thirty years—that "apples won't grow here; it's no use to plant them; it's labor and money thrown away, etc.," and in the end will buy his fruit of his more industrious and persevering neighbor.

Of the strawberry I have several kinds The best fruit and most prolific bearer is French's Seedling. Lennings White is a fine berry but a shy bearer. The Agriculturist and Russell's Prolific do well on our sandy loam. But the *Jucunda* "*Nix*" currants will grow anywhere. But the borer is playing havoc, and I now think he is bound to exterminate them.

Of grapes, if you wish to hear anything from me, just say so. I want to see Iowa a fruit growing State, and if farmers and gardeners will persevere they will succeed; that is all it needs, and if one kind won't do try another; and as I once told a neighbor in Wisconsin who told me that I was throwing money away in buying apple trees, *they will make shade trees, w n't they?* said I. "Oh, yes," said he, "they will do that." Well, said I, that's what I want of them. But the sequel is now told; they will and do, each tree, bear from five to ten bushels of apples every year, making rather profitable *shade* trees.

Geo. Warne.

Remarks.—Most certainly, Dr., do we wish to hear from you on the grape. Send along all you know of its success and failure within the range of your observations, for which the nature of your profession cannot but afford very favorable opportunities.

For the Western Pomologist.

More on the Cherry Question.—"No. 13."

Mark Miller—*Dear Sir:* I am glad to see in the June number of the Pomologist the cherry question quite freely ventilated. It is an important one, and should be seriously considered, and rightly adjusted.

We have one side of the case by Mr. F. R. Elliott, of Cleveland, Ohio, and the other by Dr. Bird, of Mt. Pleasant, Iowa. Both good cultivators and zealous pomologists. Mr. Elliott has a national reputation, and has published a book on fruits, entitled the "*Western Fruit-Grower's Guide,*" by which he has done himself great credit. Were he however, to cultivate fruits for a few years in Iowa, it would produce quite a change in his views in regard to many kinds; and as to their care and culture in our soil and climate.

In the issue between the two gentlemen named, my observation and experience lead me to coincide with the Doctor. I have given my views heretofore, but desire to notice one or two points made by Mr. Elliott. Should we go on planting the cherry without regard to the stock used, in a few years many will be compelled to retrace their steps and begin anew, or be employed in clearing out inextirpable thickets grown up from Morello roots; for, according to Mr. Elliott's theory and observation, if we get the very kind of stocks he suggests, we must not have "a plow or cultivator run in and among them," or any "breaking of the surface roots," or else the consequence will be suckers. Then, in any event, if we use Morello stocks, we have to choose between cultivation and no cultivation. If we adopt the former, we spend our days digging sprouts. If the latter, the weeds and grass not only stunt and injure the trees, but present an appearance of neglect or indolence, which no respectable culturist could endure. The way weeds grow in Iowa soil if left unrestrained, must be seen to be appreciated.

Does Mr. Elliott mean by his remarks that we are not to cultivate cherry trees after they are set out? There are many advocates for sowing grass seeds among fruit trees after they have been worked a few years, say four or five, but I know of no orchardist who proposes a total neglect of culture from the time the trees are planted.

The Mazzard stock is out of the question, and *fortunately*, as between the other two named, the question of *dwarfing* cannot arise; for if there is any difference the Morello produces greater tendency to dwarfishness than the Mahaleb. I say *fortunately*, for the reason that the very mention of the word *dwarf* in the ears of a few of our most respectable and zealous pomologists, produces a sensation almost akin to hydrophobic spasm, and I therefore wish at present, to avoid any discussion of the general questions.

I claim then for the Mahaleb that the tree on this stock will grow at least as large, if not larger than on Morello, and that it never sprouts from the roots, however much we may work the ground.

As to growing seeds obtained from Louis Philip, Donna Maria, Belle Magnifique, and Dauphene cherries to grow stocks from, it would be a slow business here. There are a few Bell Magnifique grown in the State, but I doubt if there are any of the others; and if any, certainly but very few. As far therefore as I can perceive we could not obtain stocks from these varieties, without first procuring and raising the trees from which to produce the seeds. When Doctor Bird says that "the Early Richmond on Mahaleb stock, will not bear as full at three or four years, as on the Morello stock," I do not quite agree with him. I have no doubt if we should procure the Morello stocks from seed, as we do the Mahaleb, there would be no preference in any respect, in favor of the former.

It must be remembered that these Morello sprouts which are in general use, come up from the roots of bearing trees, and therefore will begin to fruit quicker than a plant from the seed. They frequently begin to bear around the parent tree when quite small, and hence, in the use of these as stocks, the test is not a fair one. These sprouts are often fruiting before they are top grafted; and this being so, the cion will likely bear the next year after it is grafted.

In the case of the Mahaleb stock, we set out one year old plants from seed in the spring, and bud them the same season, or collar graft them the next spring, and this is the reason why the graft on the Morello bears sooner, because the stock is older when it is put on. Let any one try this fairly, and they will find that I am right.

I agree with Mr. Elliott fully in his remarks about the Rogers "No. 13" grape. All grapes worthy of cultivation ought to have a name. A man might as well number his children, as the seedling fruits he originates; and instead of calling them John, Edward, Christopher and Sophia, number them according to date of birth, No. 1, 2, 3, 4, &c.

This grape, however, is not *my* seedling, and I feel the same delicacy about giving it a name that I would about naming a gentleman's children, without permission or request.

I hope, however, to have some of these grapes at our State Fair in the fall, and if they are not certainly identified as some one of Mr. Roger's original numbers, I will submit the question to the members of the State Horticultural Society there present, whether it shall be named, and if they decide in the affirmative, I will either name it or permit them to do so; and then let it be known by that appellation until its identity is settled, or it is decided to be a new variety sent out by Mr. Rogers from amongst his numerous seedlings by mistake.

I got it from Mr. Rogers himself, and had his original lable to the vine until the wire or tie rotted off, and have also in my posession his letter which came by same mail as the plant, stating that he sent me his No. 13 on the day of its date.

James Mathews.

College Farm, Iowa, June 14, 1870.

For the Western Pomologist.

Strawberry Plants from Seed—Hybridizing, &c

I am only an amateur, but will give my method of producing nice plants from the seed of strawberries:

When the berries are fully ripe, select choice specimens, and either wash the whole berry and mix thoroughly with dry sand, or cut small pieces from the surface of the berry, containing two or three seeds each. Then drop these pieces in rows in a box of rich mellow earth, or sow the sand containing the seed, and sift all over them fine sandy loam, covering about the eighth of an inch deep. Water freely, set in a sunny aspect, keep partially shaded, and never suffer the soil to become dry on the surface. In three or four weeks the plants will appear. Keep constantly moist with luke warm water or soap suds, until the plants have tops an inch or two in diameter.

Now transplant into open ground, moderately rich with compost and vegetable mold, and very loose and fine. Shorten the roots in to two inches, and give each plant at least thirty-six square inches of surface. Keep moist and partially shaded until well established. Give them a warm location. Pinch off all runners as they appear; and you will have plants by the first of October that will cover nearly a square foot of ground, and have, perhaps, three or four crowns.

Last summer, in Central Ohio, I planted seed of the Wilson, the 11th of June, and by the middle of October had plants with three or four crowns, and a perfect mass of fibrous roots six to eight inches long.

If you plant seed that has been fertilized by hybridizing, you will obtain new varieties, and perhaps valuable ones. The seed may be dried when gathered, and planted very early in the following spring, thereby gaining a longer season for developing the new plants. W. C. Condit.

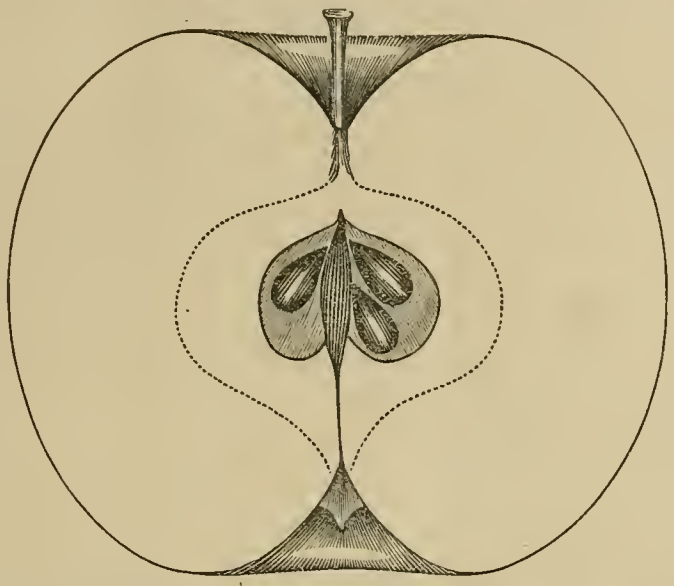
Cumberland Co., Tenn.

P. S.—I like the articles on grafting the grape, by Dr. Stayman and Mr. Miller, much. They are worth a year's subscription alone They both describe a simple and better method than I have seen before.

Remarks.—The above communication should have found a place in our columns at an earlier day. It was received in April, but through an oversight mislaid.

Cooper's Early White.

Fruit, average to large; weight, from eight to twelve ounces; form, round, regular, slightly flattened; skin, smooth, clear, straw color, with an occasional faint blush; dots, small, grey; stem, long to medium, often thick; cavity, wide, regular, rather deep, green; eye, large, open; basin, wide, deep, furrowed; core, large, regular, open; carpels, large, wide; seeds, large, plump, dark brown; flesh, white, crisp, juicy, mild acid; quality, good; use, kitchen and market; season, August and September. Tree, vigorous, stocky,



thorny, making heavy, short-jointed growth, spreading open head, *very early bearer and very productive; very saleable.* This apple has proved so fine and fair in Kansas, and so early and productive, that it should be the first variety planted on a new place, bearing, as it does, at from three to four years old from the graft.

This apple is said to have originated in Iowa, and we should like to have its history. We procured it of Mr. A. Bryant, Princeton, Illinois, 1858.—[Asst. Ed.

For the Western Pomologist.

Grafting the Grape.

Friend Miller:—In reply to S. J. Allis, I would state that at one time my opinion was that we should use vines to be worked upon as near the same class as the grafts to be used; but since, in my operations, have found that it does not make much difference.

I had a brown muscat do splendidly grafted on a Concord. Last season a friend of mine grafted quite a number of Martha on Concord stocks, and at the same time a part upon Norton's Virginia. The latter succeeded much the best.

My operating with foreign, as well as improved native sorts; upon the wild stocks here (*Vitus Cardipleu* and *Estavalgis*) do about equally well.

I pay no attention now to making an exact line of the inner bark, but invariably set the graft at a slight angle; thus insuring a connection. Split the stock with a knife by all means, and if it splits a little deeper it will not harm. Sometimes I have split with a shoemaker's knife, drawing it down with the hands, inserted the point of the widge, then drove it in with a tack hammer. This may seem a rough operation; but when the stocks are thick, and the grafts of a hard wooded kind, it answers first rate. At least I never had better success. Have grafts now three feet long set this spring. Grafted some last fall (Fuller's plan) nearly all of which prove a failure.

Bluffton, Mo. S. Miller.

For the Western Pomologist.

The Wild Goose Plum.

With a local reputation without a rival, this really magnificent plum seems to have been unknown abroad until very recently. Curculio and disease, so fatal to the finer sorts, have constrained inquiry for a new kind not liable to these objections. Wild Goose originated on Cumberland river in this State. A seedling, probably of the wild Chickasaw, and is undoubtedly the finest of all the native plums. Fruit, large to very large, crimson with numerous white dots, showy, and very good. Tree, a rapid grower, spreading, comes early into bearing; both fruit and tree being subject to no disease. The tree attains the size of a peach, in about the same time, and so far seems as hardy as a wild crab. It is thought that it will grow well and succeed in every section of our country. Like Concord grape, Bartlett pear, and Wilson's Albany strawberry, which far from being best, are yet decidedly the most valuable of their class. Wild Goose is destined to occupy a prominent place.

As a market variety it is most valuable.—Fruit may be gathered two or three days before ripe, when slightly colored, and will bear transportation well. The crop is *immense* and always commands the highest price in market. Where such things as blackberries and Philadelphia raspberries find purchasers, an acre of these plums would fill the pockets of the market-man.

There are many spurious sorts extant, being propagated from seedlings of the original. Most of these, as far as seen, are good, some comparatively worthless. The finest trees are produced by root grafting on peach; successful on any free growing plum stock. Fruit ripens here about the 20th of June. Curculio does no damage to the crop, though not entirely free from its attack.—We have tested it in the same situation with many of the most approved sorts for years, and while the others are worthless, these have remained uninjured. Our soil is strong clay, lime stone, best adapted to plum growing. Have not seen it tested in light soils, but would expect more from it in such situation than from any other sort. To all who can't have the best, yet wish to have an abundance of good, and the market man who would make an easy and sure thing of it, we say plant largely of the Wild Goose Plum. J. E. Manson.

Murfreesboro, Tenn.

For the Western Pomologist.

Trees Dying—Planting Forest Tree Seed.

Mark Miller—*Dear Sir:* I am just in receipt of last number of my Pomologist. I notice the extract from a correspondent of the *Country Gentleman*, of May 11th, writing from Champaign county, Illinois. I think it is hardly necessary to conclude that trees on our prairies can live only about ten years, because some are dying now. If he will just look at simple causes, it seems easy to understand the result in this case. We all know that the extreme wet weather last season caused unusual growth, which did not fully ripen before the severe freeze that caught so many apples still hanging on the trees. It seems to me that such a freeze so early is sufficient cause for all the evils resulting to evergreens and fruit trees. My trees have suffered comparatively little, being grown on pretty stiff clay, upland, timber soil.

Your State has done well, in my opinion, to encourage tree planting. I am in a small way doing what I can to help the good work along. I have put in fifty bushels soft maple seeds, forty bushels white ash, ten bushels white elm, six bushels box elder, some Norway Maple, and European Ash, etc., etc.

If your State will do away with the necessity for fences, or enclosures about your farms, etc., in other words, keep up or herd stock, the raising of forests would be a simple matter, compared to what it now is. It will be required of the West, I think. Very few young trees will grow up even in forests where cattle have free range, so that when the present supply is cut we are done for.

I hope to meet you at the meeting at Iowa City, on the 22d inst.

Perhaps I ought to add that the sleet last spring that added so much temporary beauty to our trees probably did its share in injuring evergreens, and perhaps other trees too.

Wm. A. Nourse, *Moline, Illinois.*

ENTOMOLOGIST

The Colorado Potato Bug

We are sorry to say that this pest of the potatoe field has re-appeared in full force.—The Colorado potatoe bug came from beyond the Rocky Mountains, and is supposed to have had its starting point in Colorado—hence its name. It was first noticed in this part of Iowa about seven years ago—we think, in the spring of 1863. The Bugologists tell us that this Colorado traveler is making from fifty to seventy miles eastward yearly, and according to report has already reached Ohio. A late number of the Miama (Ohio) *Union* chronicles its first appearance in that part of Ohio. Last season little or nothing was seen of it about here. It seems to be an established law in nature, that when any kind of insect becomes inordinately numerous and destructive, kind Providence provides a check. And, like the Chinch bug, Army worm, Grasshopper, etc.,

LARVAE.

BUG.

each of which has had its periods of increase and excess, and its sudden and mysterious disappearance, within the last fifteen years, we had reason to believe that the potatoe bug had also fulfilled *its* mission in this part of the country. But not so as the sequel shows. It seems to have disappeared for a brief period, and only to gain new strength, for it re-appears this season in larger numbers than ever. We have yet to fight it, and the question of means or remedies naturally arises.

To destroy this pest, or at least hold it in check, nothing has proved so effectual in times past, as gathering the bugs by hand and crushing them. This is done by passing along each row, from hill to hill, with a stick in one hand and a broad tin pan in the other. Place the pan close alongside the

DUSTER.

vines, and with the stick carefully incline them over it with a slight jar. If done carefully but very few bugs and larvæ will escape the trap. Of late, however, a more expeditious remedy seems to have been found in the use of Paris Green. It is a "dead shot" on the bugs, but rather a dangerous agent in careless hands. Great care should be taken against inhaling it into the lungs. For use, the Green is incorporated with flour, or some other dry powdered substance. A correspondent of the *Country Gentleman* used it with perfect success in the proportion of 1 lb of the Green, 2 lbs of wheat flour, and 16 lbs of finely sifted wood ashes, well mixed. It is dusted upon the vines a dredging-box or something similar and which should be attached to a handle five or six feet in length. The operator should keep to the windward, and a further precaution by muffling the mouth and nostrils would be advisable.

In this connection we present a simple contrivance for a duster. It is made of tin, and of any size desired, with a hollow shank or handle about one and a fourth inches in diameter and four or five inches in length.—Through this the duster is filled, and also answers the purpose of a socket for the handle, which may be inserted and withdrawn at pleasure.

Progress of Fruit Culture

Mr. P. Wilder, President of the American Pomological Society, at its Philadelphia session in October last, said:

Mark the amazing increase of the small fruits. Take, for instance, the strawberry. Within the memory of many of this assembly, we were dependent almost wholly upon the wild species of the field, or the few which had been transplanted to our gardens. It is only about thirty years since the first attempt we believe, was made on this continent to raise from seed a new and improved variety—thanks to the enterprise of Mr. Hovey, which gave us a fruit that has stood the test for a whole generation of men. Compare the small, dry, seedy, red, and white wood strawberries of our youth with the numerous larger luscious varieties which have come to notice in our day. Not only have the latter increased to hundreds of varieties within this time, but the quantity produced is in still greater ratio. What would our fathers have said at the dispatch from a single railroad station in the Western States, where fifty years ago the emigrant had scarcely set his foot, of one thousand bushels of strawberries daily to market, or from another depot on the unoccupied lands of New Jersey, taken up within fifteen years, a similar quantity sent to the New York market daily; or, still more remarkable, from Norfolk, in Virginia, where seventeen years ago the cultivation of this fruit had not commenced, and from whence, during the present season, three millions of quarts have been sent to the Northern markets!

Thirty years ago we possessed only two good varieties of the raspberry, the red and white Antwerp; now we have numerous fine kinds; and where a man thought himself fortunate to gather a saucerful, it is raised, as by our friend William Parry, of New Jersey, by hundreds or thousands of bushels for the market. So of the currant and blackberry. Of the latter, not a single variety had then been introduced into our gardens or catalogues; now we have many new kinds, and the product is equally great.

The ingenious methods of gathering, preserving, and packing of fruits, and the improved means of safe transmission to distant markets, are among the most important advances in this new era. To such perfection have these been brought that not only our small, tender fruits come to us a hundred or a thousand miles in good order, but the grape and the pear travel from the Pacific to the Atlantic coast. While penning this address, pears and other fruits have come to our own hands from California, in perfect condition; and, to add to our surprise, the pears of that State are finding a market in Japan. Our cheap and convenient postal facilities for the transmission of seeds, scions, and plants, promoting the introduction of new fruits into the remotest parts of the land, are such as no other nation has ever enjoyed, yet not more than commensurate with the demands of our extensive territory; and we trust the day is not distant when we shall have equal facilities for such reciprocal advantages with the whole world.

How they withstood the Winter.

Mr. D. B. Wier, of Lacon, Ill., in a communication to the *Western Rural*, on the effects of last fall and winter on fruit trees, says:

"Could I have worked out my 'own sweet will' last summer in cultivation, we would have losa thousands; where, as it is, we will lose but little. The rains came too fast for me in July; the weeds got too great a start, and the trees were saved. I will now give a list of the varieties that were injured and uninjured here, that may have a value for future reference. I will commence with evergreens, naming them in rotation as damaged,—the worst first:—American Arbor Vitæ, Red Cedar, Balsam Fir, Hemlock, White Pine, Norway Spruce. *Uninjured*—Scotch Pine, Austrian Pine, Norway Pine, Siberian Arbor Vitæ, Variegated Arbor Vitæ (American.)

None of the evergreens in this neighborhood are entirely dead; some only lose the header; others, the upper growths of the last two or three years; some all killed but the lower tiers of branches. All are starting vigorously below where they were injured.

All the hardiest cherries, such as common Morello, Early Richmond, English Morello, Late Kentish, etc., on light as well as heavy soils, were, many of them, injured; some few killed outright,—*i. e.*, young trees that were growing thrifty. Like the evergreens, they were killed in the tops, and with many specimens all the twigs of last season's growth failed to grow. Others are dead half way down the trunk; others down to just above bud; some all dead with the *Mahaleb* stock shooting vigorously beneath them. Yet "Rural" says it is tender! Young thrifty trees of the Duke varieties were mostly spoiled, and, strange to say, young trees of the Sweet varieties (Hearts and Bigardeaus) did not suffer nearly as bad as the other classes. We had Gov. Wood that grew nine and one-half feet from the bud last season that came out all right.

Apple trees in the Nursery.—Some varieties were injured in the twigs, same as the cherries and evergreens, but the greatest amount of injury resulted from the bark's bursting near the ground. I find on examination that many of our hardy forest trees were affected in the same way, such as Acer Negundo, Sassafras, Silver Leaf Maple, Sycamore, etc. A curious fact about these trees which were killed in the tops is, that they looked all right and perfect until the time for growth to commence in the Spring, when they suddenly shrivelled and died. So we nurserymen had the exquisite pleasure of selling dead trees without knowing it.

—Lord Brougham estimates that a bee can fly over ninety miles an hour, or one and a half miles a minute.

For the Western Pomologist.

Among the California Vineyards.

A Six Hundred Acre Vineyard—Varieties of Grapes—Price of Wines—Price of Labor—Irrigation of Soil.

LOS ANGELES, CAL., June 3, 1870.

FRIEND STAYMAN.—Since writing you from San Diego, I have seen more of the country. My son and myself took the stage at that place and came here by the way of Anaheim, the beautiful little paradise that we read so much about in our Horticultural Journals. It is 115 miles north of San Diego, 12 miles from the sea shore, and 20 miles south-east of this place—the city of Angels. Anaheim is the German colony who settled in a little desert for the purpose of growing grapes and making wine. Their whole purchase of land was 800 acres, now mostly covered with bearing vines 5 to 10 years old, as near as I could ascertain. There is 6 of the 800 acres in grapes. They appear to be industrious but generally with not very flattering hopes for the future. They make some wine there, but are generally too poor to hold it long enough to realize a fair price. It is mostly sold as soon as pressed from the grape to San Francisco merchants for 25 cents per gallon—the merchants furnishing the pipes. I can now buy any of their two year old wine at 40 cents per gallon at their cellars. It is much better than any of the California wine I ever tasted in the States. Wine growing could not be made to pay here with the price of labor in the States. The Anaheim Germans work like slaves themselves, and hire California Indians at 50 cents a day, use no stakes, or trellises, plant usually 8 by 8, and cultivate with the plow. Their locality is a very singular one, It appears to be almost a sand-bar in the Santa Anna river. The soil looks very much like the light floating sand on the bars in the Missouri river. Scarcely two feet above the bed of the now dry river. The water which is used for irrigation is taken out of the river some ten or twelve miles above. The vineyards are flooded two or three times in the forepart of the season, then left to ripen up the crop without further irrigation. Water is plenty at a depth of three feet from the surface through a very loose sand, apparently as poor as any other sand bar. Their vineyards are now divided into 20¼ acre lots, and are each enclosed with a sort of willow hedge, and are thought to be worth from eight to twelve thousand dollars each. The grapes are now in full blossom, do not appear near as early as with us. The variety mostly cultivated for wine is the Mission grape. Foreign grapes are grown some, but not profitably for the want of a market. Apples and peaches are not leaved out yet, though some of them are blossoming, and some have apples and peaches half grown without a leaf on the trees. That is the case all over this southern country. Nothing but oranges, grapes, figs, and english walnuts appear to succeed well, tho' many other fruits are cultivated for an experiment. Nothing in either Anaheim or Los Angeles has paid as well as a good apple orchard in Missouri or Kansas.

It is thought that oranges and the English walnut will pay at this place. Yesterday I visited many of the orange orchards. I found none that had paid over ten dollars to the tree at fifteen to eighteen years old. They do not give a crop until twelve years old. There is now about six thousand in and about Los Angeles that are in, and are coming into bearing. It is thought here that there is some eighty thousand trees planted out altogether, including those not yet in bearing. The very best men who work them only get one dollar per day. They all have to be irrigated three or four times a year, and kept as clean as a garden bed.

Lemons of a poor quality are grown here; also, limes and olives to a small extent. None of these fruits, however, are so good as the Florida semi-tropical fruits—thicker skinned and less flavor.

Anaheim has on the whole tract about eight hundred or a thousand inhabitants. Los Angeles, including the city and about four miles square, a population of about eight thousand. The balance of the county is unoccupied, and held by large ranch owners, who depend on their grazing in ordinary seasons. This season nearly all their herds are driven to the mountains, where, as the snow melts, the grass grows. There are many droves of horses yet here that can be bought for six dollars a head, averaging the herd through—such horses as would bring about sixty to eighty dollars in Kansas. I could not advise any of my Kansas friends to come to this country with the expectation of bettering themselves in anything but climate. As a fruit country, generally, Kansas is far superior to this. Here only certain varieties grow, in certain localities, while in Kansas we grow almost all kinds except the tropical fruits.

WM. TANNER.

REMARKS.—This very interesting and satisfactory letter from Mr. Tanner, of Leavenworth, Kansas, will be read with interest by horticulturists. Mr. Tanner is not only a thorough horticulturist, but one of the most accurate observers we have. He is a cool, calm, and deliberate person; spent some time in California years ago, before fruit-growing had made any sensation there, and had great faith in that country from the mildness and regularity of the climate. But this present visit has fully changed his mind. In a private conversation since his return, he says the country has been very much overrated, particularly in fruit-growing.—[ASST. ED.

For the Western Pomologist.

Fruit Prospects—Miama Black Cap.

FRIEND MILLER:—We have had a delightful season for work here, but is just now a little too dry, yet we have small showers about once a week.

Our general fruit prospects are by no means flattering. The apple crop is almost a failure. The warm weather of the fore part of April served to advance the fruit buds so that the severe freezing which followed cut off almost our entire crop of apples, pears, cherries, and plums. Peaches fared better than most other standard varieties of fruits, so that where there are trees, there will be a moderate crop of them. The late blooming varieties of apples have, of course, fared better than those that came out early, but as we have had a greater profusion of insect enemies (worms) than usual, there will not be much more than a sufficient crop for *them*. The "end" worm, (leaf roller" has become one of our worst pests here, as they frequently destroy almost the entire new growth, during the month of May, on large, as well as small trees. There are several kinds of these worms, but the most common kind is a small white worm with a black head; and how to head him off effectually, has become a serious question for consideration; but as this pest ascends the trees from the ground, on the first appearance of leaves, I think the same remedy as for canker worm is the only one that will do any good.

Strawberries, where the vines had winter protection, are bearing quite well; and raspberries (my Miama Black Caps) promise the most abundant yield I ever knew—in fact they are already bending under their load of fruit; and this, together with my present prospect for tuns of grapes, compensates me, in some measure, for my losses in other directions. In fact, grape vines are generally as full of bloom as they can "stick."

The great advantage to be derived from having a variety of kinds, of both standard and small fruits, can be more readily seen this season than usual, for there was scarcely ever a season known where an *entire* failure occurred. IRA PHILLIPS.

Keosauqua,, Iowa, May 30, 1870.

REMARKS.—We find the Leaf Roller more plentiful about here than in former seasons. We think this insect may be controlled without much trouble, by picking off and crushing the twisted leaves. The rolling up of the leaves is done by the full grown worm, and if picked when the process is going on, the worm may be "nabbed" and destroyed. This pest of the orchard should not be tolerated when it can be so easily kept in subjection. We profess to know but very little about the habits of this insect.—Cannot some of our correspondents tell something about it?

THE POMOLOGIST.

Advertisements.

We would invite the attention of nurserymen, seedsmen, and dealers in agricultural and horticultural implements to the POMOLOGIST as an advertising medium through which to communicate with the public. To nurserymen our paper offers special inducements for advertising trees, plants, and nursery stock in general. Our patrons above all others, are the very persons who have faith in the success of fruit-growing if rightly managed, and in the natural course of things are the very ones who patronize the nurseryman. Nor do any class of men part with their money more freely. In fact the readers of our paper are of the progressive sort, and the paper its·lf a live one, as evidenced by the variety and originality of its contents—made up as its columns show, in a great measure, by the contributions of a very large and intelligent circle of correspondents. We don't profess to have "ten thousand" subscribers, but do claim a very respectable and growing subscription list. The paper is issued on the first day of each month. Advertisers should bear this in mind. Hence, to be in season, advertisements should be received by the 25th of the month preceding publication day. An earlier date even, would be preferable.

ACKNOWLEDGMENTS.—Thanks to the Wisconsin State Horticultural Society for a complimentary ticket to the Society's first annual summer exhibition of fruits and flowers, held at Oshkosh, June 22 and 23. The Hennepin, (Min.) and the Joe Davis (Ill.) County Horticultural Societies also have our hearty acknowledgments for like favors. It would have given us profound satisfaction to have responded in person to these several invitations—to have met face to face many of our old pomological friends and present patrons. A visit to the Wisconsin Fair would have been to us an occasion of peculiar interest and pleasure, for we were one among the few who brought the Wisconsin State Horticultural Society into existence—at an early day too, when fruit growing west of lake Michigan was considered extremely problematical,

ROT AND BLIGHT AMONG THE GRAPES.—Our editorial associate, Dr. J. Stayman, writes us June 12: "We have the blight here and some rot among the Concords. A committee has been appointed to make an examination soon and report." We shall be glad to hear from other sections of the country wherever these maladies make their appearance. Many theories have been advanced upon the cause and cure of this grape rot and blight; but so far, we believe, all have ended in smoke. Still, it is well enough to keep talking about it.

DEGENERACY OF OLD ORCHARDS.—Much is said about the degeneracy of the old orchards of New England and why it is, a corresponent of the *Maine Farmer* takes a very sensible view of the question when he says: "The apple tree does not live always; we must plant more trees to take the place of the old ones. There is a limit to the life of all organized bodies, and the apple tree is no exception to the general rule. If the farmers had taken this view of the subject some thirty years ago, and had planted a few trees yearly, this mourning over old orchard's decay, would never have been thought of."

FAIR OF THE IOWA STATE HORTICULTURAL SOCIETY.—The Iowa State Horticultural Society will hold its Fourth Annual Exhibition at Keokuk, Monday to Friday, September 12 to 16, in connection with the State Fair.

PREMIUM LIST.

Fruits---Professional.

Best and largest variety of apples named	$25
2d best do	15
Best specimen of fall eating apples	6
2d best do	4
Best specimen of fall cooking apples	6
2d best do	4
Best specimen of winter eating apples	6
2d best do	4
Best specimen of winter cooking apples	6
2d best do	4
Best collection of fall eating apples	5
do collection of fall cooking apples	5
do collection of winter eating apples	5
do collection of winter cooking apples	5
do variety of seedling apples	5
do collection of pears	15
2d best do	10
Best specimen of fall pears	5
do specimen of winter pears	5
do collection of fall pears	5
do collection of winter pears	5
do specimen of quinces	5
do show of plums	5
do display of crab apples	5

In the professional lists, fruit must be named in every instance, and no premium will be awarded unless they are named correctly.

Nurserymen and professional fruit-growers must exhibit in this class.

Exhibitors will be required to designate by card, each distinct entry, and must have a separate and additional quantity for each entry made,

Four specimens of each variety will be required in this and the succeeding list. All fruit must remain on exhibition until the close of the Fair.

Before premiums are awarded, exhibitors must make statement that fruits are grown by them.

In considering the best in this list, not only the size and flavor of fruit must be considered, but hardiness of tree productiveness, and earliness of fruiting.

Fruits---General List.

This is merely a duplicate of No. 58, under the same requirements, except that an incorrect name may not deprive the exhibitor of a premium. In either list not less than six of each kind should be furnished of each specimen.

Best and largest variety of apples named	$25
2d best do	15
Best specimen of fall eating apples	6
2d best do	4
Best specimen of fall cooking apples	6
2d best do	4
Best specimen of winter eating apples	6
2d best do	4
Best specimen of winter cooking apples	6
2d best do	4
Best collection of fall eating apples	5
do collection of fall cooking apples	5
do collection of winter cooking apples	5
do collection of pears	15
2d best do	10
Best specimen of fall pears	5
do specimen of winter pears	5
do collection of plums	5
do collection of peaches	4
do collection of quinces	5
do show of crab apples	5
Most promising seedling apples	5

SPECIAL PREMIUM.

By John Givin, of Keokuk.

Best collection of pears, not less than ten varieties, true to name; five specimens to each variety. To be grown by amateurs, nurserymen excluded: Mr. Givin not competing	$10

SPECIAL PREMIUM.

By H. B. Ten Eyck, Keokuk.

Best peck peaches	$ 5

Grapes.

Best collection of grapes	$10
2d best	5
Best exhibition of Catawba grapes	5
do exhibition of Isabella grapes	5
do exhibition of Concord grapes	5
do exhibition of Delaware grapes	5
do exhibition of Clinton grapes	5
do specimen of other American varieties	5
do collection of table grapes	10
do collection of foreign grapes	10
do 6 bunches of foreign grapes	0

Wines.

Best Catawba wine	$ 3
do Concord wine	3
do Clinton wine	3
do Delaware wine	3
do bottle of any other grape wine	3
do wild grape wine	2
do currant wine	2
do blackberry wine	2
do elderberry wine	1
do rhubarb wine	1
do gooseberry wine	2
do crab apple cider	2
do champaigne cider	3
do common cider	2
do sweepstakes bottle of wine	6

SPECIAL PREMIUM.

By G. Hunziker. Keokuk.

Best bottle Catawba wine	$ 5

Plants and Flowers.

Professional List.

Best floral design not less than five feet high, and proportioned accordingly	dip. $10
Best floral arch	3
do floral wreath	5
do and greatest variety of named flowers,	10
do and greatest variety of unnamed flowers	5

Dahlias.

Greatest and best variety	5
Best twelve dissimilar blooms	3

Fuschia.

Greatest and best variety	5
Best six	2

Roses.

Greatest and best variety named	10
Best twelve	5
do six	3

Verbenas.

Greatest and best variety	3
Greatest and best display	2
Best show of this years seedlings	dip.

Astors.

Greatest and best variety	2

Phloxes.

Best display	2

Gladiolas.

Best display	2

Petunias.

Greatest and best variety	dip.

Pansies.

Greatest and best variety	dip.
Greatest and best display	dip.
Best collection of green house plants	15
do collection of green house plants in bloom	15
do and most tastefully arranged vase of cut flowers	2
do and most tastefully arranged pair of small vases of cut flowers	2
do and most tastefully arranged large basket of flowers	2
do and most tastefully arranged pair of baskets of cut flowers	3
do and most tastefully arranged pair of flat hand boquets	2
do and most tastefully arranged pair of round hand boquets	2
do collection of wild flowers in bloom and named	3
do assortment of evergreens, live with roots on	dip. 12
2d best	8
Best pair flat boquets of immortelle flowers	2
do pair round boquets of immortelle flowers	2
do wreath of immortelle flowers	2
do fountain and arrangements	25

Plants and flowers in this class to be correctly and legibly named. Professional florists must exhibit in this class.

Plants and Flowers.

Amateur List.

This class is a duplicate of Class 49. The same articles will be shown and the same premiums awarded as in 49. Professional florists not allowed to exhibit in Class 50.

POMOLOGISTS ON THE MOVE.—Marshall P. Wilder of Boston, President of the American Pomological Society, Chas. Downing of Newburgh, N. Y., George Ellwanger, P. Barry, and J. W. Clark of Rochester, N. Y., passed west a few days since on a tour to California. At Omaha, they paid a brief visit to the summer exhibition of the Nebraska State Horticultural Society.

Horticulture on the College Farm.

Last winter a department of Pomology was instituted in the Iowa Agricultural College, and Capt. James Mathews appointed professor, mention of which was made in a previous No of our paper. Professor Mathews entered upon the duties of his office early in the Spring. Previous to that, little or nothing had been done upon the farm pomologically. The following report made by Prof. Mathews to the President of the College, shows that the operations of his department are being energetically prosecuted, and from which we expect to see some important results:

REPORT FOR JUNE.

Mr. President:—In compliance with the law and regulations of the College, I present you herein, as the executive officer of the Institution, my report for the month of June, with a brief statement of my operations and progress during said month, together with such suggestions as occur to my mind in reference to the future of my department,

I will say first, that I have been daily in charge of from one to three and four squads of young gentlemen detailed by you for labor, and am happy to say, that almost without any exception they have manifested great interest in the planting and culture of fruits and fruit trees, and an aptitude for acquiring a knowledge of the science generally, far beyond my most sanguine expectations. I have no hesitancy at this time, after a practice of only a few weeks, to entrust any of the squads referred to, with the most delicate work, where I have previously given them instructions in the kind of labor to be done, even for a single day. By the time we make the round of one year in the various operations of the seasons, I have no doubt many of the students will be fair workmen, and have quite a comprehensive knowledge of the general principles of fruit culture. When I speak of the year's work, I mean, of course, to embrace root grafting during the winter, which, I think, absolutely necessary for such students as intend to make the nursery business their future occupation.

I find also by the interrogatories propounded upon every favorable opportunity, that many of the young gentlemen are being deeply interested in my weekly lectures upon pomological subjects, so that I can truly say there are many anxious inquirers after knowledge in fruit culture, and to acquire which they only want the opportunity.

Somewhat unfortunately for us in the initiatory steps of fruit culture upon the College Farm, the season here has been remarkably dry. We have had only two showers in this locality within the last seven weeks, and neither of these wet the ground more than about one inch deep, even where it has been well pulverized, and is in good condition; and still our success in transplanting, as I shall state more fully at a future time, has been successful beyond what we could have ventured to anticipate. Of apple trees, grape vines, currants, cherries, &c., I have, by great care and thorough work, saved about all.

In this department, according to my estimate I have not planted near enough to meet the actual wants of those connected with the College, even were all the trees, vines and plants on the premises in good bearing. This I could not do the present season, for several reasons.

First. There was great difficulty in finding good trees, &c., of suitable kinds for this locality.

Second. We had not teams enough with which to perform other essential work on the farm, and prepare my ground for planting.

Lastly. And not by any means least, as you are aware, was the want of funds. For some reason, and perhaps for want of a formal application to them, the Legislature have thus far failed to make any appropriation for planting orchards, vineyards, and small fruit gardens.

The entire cost at the nurseries for what I purchased this spring, including packing, is about two hundred and twenty-five dollars, and if all were in full bearing, they would not furnish half enough for our yearly supply. I estimate that about one thousand dollars, including the current expenditures before named, will be sufficient to stock our grounds with fruits enough to supply all persons on the farm, with an abundance the year round; the small fruits, including grapes, coming into bearing in two years, and the orchard trees in five to six years from planting. Should it be thought advisable by the constituted authorities to authorize me to start a nursery and experimental grounds, I think about five hundred dollars per annum for two years, besides what we can obtain by exchanges and otherwise, will be sufficient to put this project in successful operation. One great object in this branch will be to enable us to make gratuitous distributions of cions, cuttings and plants, in small quantities, to all citizens of the State who may desire to test in their particular localities, new and popular fruits which may be collected by the Pomological Department here.

Confident of success if sustained by the authorities, I cannot doubt, that upon a proper presentation of the subject, our General Assembly will meet these small, yet important demands. A little reflection and investigation will satisfy all unbiased minds of the absolute necessity of the first named appropriation, for health, comfort and economy; the expenditure will yield an annual return of more than one hundred per cent. upon the outlay. And furthermore, that the *latter* cannot only be made a source of profit to the State, but an incalculable benefit by procuring and distributing to its citizens all the best fruits known, and which can be grown in Iowa.

I must be pardoned, Mr. President, for making the foregoing suggestions, because they pertain to the department assigned me, under your general supervision, and because I am sensible that without State aid, (though in comparatively very small sums,) we cannot make that progress in pomological development which we ought. Nor can we in any reasonable time furnish the institution with an annual supply of our luscious fruits.

With a comparatively small amount we can be supplied with an abundance of those fascinating and healthful luxuries which the late Mr. A. J. Downing, the great American pomologist, declared to be "*the most perfect union of the useful and the beautiful* that the earth knows."

Shall not our tables be richly and healthfully supplied, and that, too, exclusively with the productions of our College Farm, and by the labor of its students?

Respectfully submitted,
JAMES MATHEWS.

FRUIT IN BENTON COUNTY.—Mr. W. N. Parker, Vinton, writes us June 15—"Our fruit prospects are very slim. Orchards blossomed finely but from some cause or other but very little fruit set. Raspberries are the only fruit that promise a full crop.

Fruit Prospects in Wisconsin.

MARK MILLER, *Dear Sir:*—The prospect for fruit in this immediate section is anything but flattering. From my own observation, as near as I can judge I cannot estimate the apple, pear and cherry over one half of an average crop; plums almost an entire failure by the circulio. We had an extraordinary large crop of apples, pears and cherries last year, and we did not look for full crops this The early freeze last October, played sad havoc with the young plum, and some other nursery stock. Orchard trees and nursery stock growing finely.

J. GOULD.
Beaver Dam, Wis.

"No 13."

FRIEND MILLER:—I must concur with F. R. Elliott, of Cleveland, Ohio, (June No.), in reference to Capt. Mathews' "No. 13" grape. If the nomenclature is not full already, I would say *call it something* beside "No. 13", and would suggest the name of MATHEWS, but as the Captain is a modest man, *if he* objects, I would then suggest the name of "IOWA." Let the POMOLOGIST and others speak on this subject, and let some one "*name the child*," and not call it "No. 13" S. J. COMFORT.
Denison, Crawford Co., Iowa.

AS IT SHOULD BE.—After repeated failures on the part of the Illinois State Agricultural Society to get up a creditable show of fruit at its annual fairs, the Board of Control have very wisely given over the supervision of the fruit and floral departments to the fruit-growers of the State. In times past, the Horticultural exhibitions of the society have not been at all creditable to the State—taking into account her vast pomological resources. Under the new order of things we predict a good show of fruit at the next Illinois State Fair, unless the crop is a bad failure.

GRAPE ROT, BUG TRAP.—At the May meeting of the Montgomery (Ohio) County Horticultural Society, the President advanced a new theory on grape rot. He thought that in the hot months of the year, when it rained, large drops settled on the grapes, and, in the hot sunshine which succeeded, the raindrop acted as a *lens*, scalding the grape and inducing the rot. He had particularly noted this, and there was no doubt about this rain-drop lens being mainly the cause of the rot. The way to avoid this is to shelter the vines by placing broad planks over them. The attention of members was directed to this matter.

At the same meeting Mr. W F. Heikes presented a contrivance for trapping insects on the wing, and upon which he remarked: "it is used at nights, and by means of a lamp enclosed by a glass globe, the insects are attracted by the light, and striking the glass globe, fall down into a pan below which contains oil, and are drowned in it. Mr. Welty has used the contrivance for a number of years, and he has caught any quantity of bugs, etc, He has raised plums uniformly each season since he has used the "bug destroyer."

EXHIBITIONS.—Spring and Summer Horticultural and Floral exhibitions are gaining popularity all over the country. At Charleston, S. C., a grand floral exhibition was held May 3d. On the 11th, the Agricultural Fair Association of the cotton States, held a Horticultural exhibition at Augusta, Ga.

CRANBERRIES.—The Cap Cod *Gazette* says the severe frost on Tuesday, May 31, damaged the cranberry crop of the Cape to the amount of $150,000.

For the Western Pomologist.

Fruit in Kossuth County.

Northern Iowa is a plateau 2,000 feet above the level of the sea. Five miles east of Kossuth county line, in Crystal Lake, rises the river Iowa, running south and emptying into the Mississippi. And ten miles northeast of this rises the Blue Earth, which runs north and empties into the St. Peter's. Over these prairies the winter winds chase each other in high dudgeon. We have always a pure, sweet atmosphere, as healthful as mountain airs. The surface of the country sweeps away in gentle undulations—checkered with quick streams—dotted here and there with groves—and now and then embracing a clear gleaming lake,—a charming landscape. Our soil is mainly "drift" with a lively dash of sand,—strong, dry and quick. Grey old boulders lie scattered on every section and occasionally a bed of smooth pebbles, dropped from melting icebergs long ago.

Our soil, I think, is well adapted to fruit-growing; and although our winters are severe, the ground is generally covered with snow during the most of the cold weather In the summer of 1867, a nurseryman considerably south of this, told me that he had lost thirty thousand young apple trees the previous winter. But Mr. Dean, who has a handsome nursery at Blue Earth City, Minnesota, told me that he lost no trees that winter. We are not subject to the thaws and rains in winter to which the people of Central and Southern Iowa are exposed. The last "October freeze," which did such immense damage to the nurseries of Illinois, did not injure the young trees in my nursery. Perhaps, standing nearer the pole, our trees catch the whispers of the coming frosts earlier than their southern kindred and so prepare themselves betimes.

Still, but very little has been attempted in fruit growing throughout this region. A few handsome, thrifty apple trees have borne fine specimens of fruit, giving promise of success in this direction. And I think the few trees planted in this county have a much more healthy, thrifty appearance than those one degree south of this.

Of grapes we can produce any quantity, if we can only thoroughly mature them. During the last extremely wet summer, the foliage on my vines remained bright and vigorous. Have heard nothing of rot or blight in this region. I am not sure whether we can perfectly mature the Concord every season. The vines are very young yet, and but few are in bearing. But the *Delaware* is a perfect success here. It is perfectly healthy after the first year or two very vigorous, and loads itself with rich purple clusters. Half a degree north of this, in Minnesota, I have seen Concord, Clinton and Delaware vines which had hung on the trellis all winter, completely loaded with fruit. Plums and cherries promise well. Plums especially, I believe will do splendidly here. As I said, but very little has been done in this direction. Perhaps there is not more than 100 fruit trees (except the small fruits) in bearing in Kossuth. But these promise well, and many are encouraged to plant. Strawberries, gooseberries and currants produce abundantly, and many gardens are well supplied with them.

In the cultivation of forest trees considerable is being done. Very many farmers are planting groves of cottonwood, maple, willow, and Lombardy poplar; and some are planting the black walnut, which appears to be just as thrifty as soft maple. All are pleased with their success in this line, and artificial groves are beginning to dot the prairie in all directions. I have seen no part of Central or Northern Iowa where so much has been done in planting forest trees as is being done in Kossuth. And we intend to keep on planting. We will embower our homes with foliage and deck our grounds with trees. Birds will build in their branches and chatter to the children; and we will lie in their shadows and watch the blue clouds overhead.

J. Alden Winter.

Buffalo Fork, Kossuth Co., Iowa.

For the Western Pomologist.

Top Grafting—Long Lived Trees.

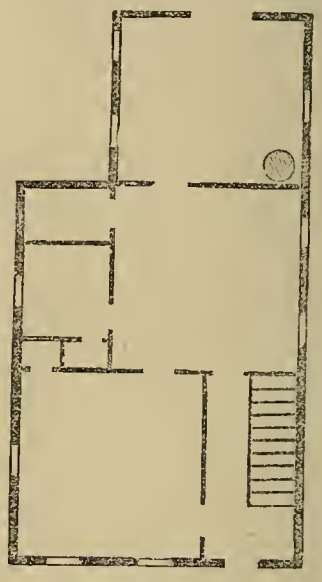
Friend Miller.—I think President Mathews' address is in advance of former occasions. It is full of interest to me. I am glad that horticulturists are determined to search out that which they do not know. President Mathews' ideas of starting an orchard accords with my experience, except that of grafting on center of stock. I think it better to select trees in the nursery of a hardy variety, that put out limbs horizontal, then graft in the limb, when two or three years out. Many will remember some years back that the large limbs were killed in winter, that is, on top. Many of them survived, and can be seen in this part of the State at the present time; many others were entirely lost. I grafted two Pennock trees several years ago in limbs as above. They are now thirty-one years old, (one Sweet June, the other Baldwin) sound and healthy—not a single limb shows any appearance of splitting down. I don't see why they will not live a hundred years. The Pennock is a fine grower, and will make good stocks for this part of the State. I have lost several trees by splitting down, about as many as by winter killing. Orchards will last much longer got up in this manner than in the common way, and will do well farther north. Any person can afford to pay three prices for such trees. There are some kinds that will do root grafted, such as Early Harvest, Red June, etc.

Joseph Frazier.

Salem, Henry Co., Iowa.

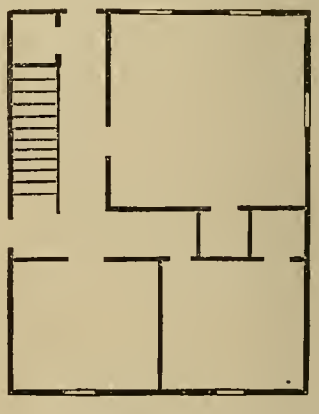
Plan for a Dwelling House.

Herewith we present plans for the first and second floors of a dwelling for a small family. The design is one of our own getting up, and though possessing no special novelty, we may be pardoned for claiming that, so far as convenience of arrangement is concerned, in a small, economical house, the design can scarcely be improved.



FIRST FLOOR.

On the lower floor we have first, a hall with a flight of stairs leading to the second floor. Next a parlor connecting with a closet. In the rear of the hall and parlor is the living or dining room connecting with both.



SECOND FLOOR.

This room opens into the family bed room with closet, and also into the pantry. Farther back is the kitchen with cistern in one corner. The cellar, or basement, is reached by a stair-way under the hall stairs. On the second floor we have three rooms, two of which connect with closets, and for the accommodation of the other one, a closet reached through the hall in front of the stairway. As to size of rooms the scale may be varied. Any style of architecture for the elevation may also be chosen to suit the taste of the builder.

Northeastern Iowa as an Apple Country.

BY SAM'L MURDOCK, CLAYTON CO.

When I first came to this portion of the State I became impressed with the opinion that the soil, climate, and topography of that portion of the county lying along the Mississippi and its tributaries would in a few years produce the finest apple orchards in the great West.

In view of this opinion I commenced the experiment in my county among the first of her settlers, and I believe I raised the first apples that was ever grown on what was called the High Prairie of Clayton county. I was not, however, the first one who produced an apple in the county. Henry Redman, an old pioneer, a Kentuckian by birth, and a noble, generous-hearted specimen of frontier life, in one of his migrations, brought with him from his native State a few apple seeds. These he planted with great care in his garden, on Turkey river, and carefully watched their growth until they bore him fruit. Some of them are still standing, and have been bearing for more than a quarter of a century. Near the root of one of them the oldest pioneer in fruit-growing in Northern Iowa sleeps his last sleep. In the spring of 1843, an interprising man by the name of Owen came to Prairie-La-Porte, now Guttenburg, with a small stock of trees, and established a small nursery, but unfortunately he fell a victim to the fever the first season, and left his trees to the care of an executor. He was a scientific man, and thoroughly acquainted with every branch of horticulture, and his loss at that time was a severe blow to the interests of Clayton county. From this executor I purchased, with some of my neighbors, a small lot of trees, and from these trees I raised my first apples. Nearly half my trees from this purchase are still standing good and sound and for more than twenty years have produced abundance of fine fruit, while among my neighbors I do not think there is one left. Since that time I have from time to time increased my stock of trees, and still patronize the generous nurseryman as he semi-annually visits my humble abode, until at last I have a good stock of trees that bid defiance to heat or cold. True, since the winters of '57 and '58, I have suffered with the rest in the loss of trees, but while I have lost comparatively few, many have lost them all. More than once within the last two years has the cry been raised that apples cannot be successfully grown in Northern Iowa, and this results from the fact that within the period I have mentioned, there have been winters of unusual severity among fruit trees. But those who raise this cry are not aware that beyond the limits of Iowa, from the best fruit-growing districts of America, comes the bewailing moan, "Our orchards are dying out, and we cannot replace them with new ones." Four years ago I passed through several of the best fruit-growing States in the Union, to the Atlantic, a during a trip of several thousand miles I did not see as good an orchard as your own, nor do I believe its equal can be found in America, taking everything into consideration. At least I have seen nothing to compare with it, either in Iowa, Missouri, Illinois, Indiana, or Pennsylvania; and I will here state that I have seen better, and more sound apple trees north of a line running through (east or west,) on the south line of Jackson county and east of the Wapsapinicon river, to the Minnesota line, than I have seen in the States I have mentioned. Now when we take all these things into consideration, are we not extemely blessed over many of our sister States, who could once grow the apple in perfection, but who are to-day, almost in despair over repeated failures? Again, I believe I can say without fear of successful contradiction, that with the exception of the State of Michigan, and perhaps Missouri, Iowa has lost fewer trees in proportion, than any of the fruit-growing States east of her. And, moreover, young orchards can be reared here, and brought into bearing, while in many of the older fruit-growing States they cannot be raised at all. Let us, therefore take courage from these facts and observations, and continue our efforts to adorn and embellish our farms with good orchards.

In North-western Iowa the country is rolling, lies high, and in many places is tumbled up into thousands of fantastic hills, down whose sides dash as many streams of the purest water. The soil, with the exception of here and there a span of the great prairie beyond, being a rich clay. Over this belt of country exists, from one years' end to the other, the clearest, purest, and brightest atmosphere in America, where universal health abounds among men, and where a grape never mildews, and an apple-bloom scracely knows a frost. True, there are localities where trees cannot flourish, for the apple will never prosper on a rich mucky soil in any country, nor will it grow and bear on our rich river valleys, or on low, flat prairies. But on our hill sides, on our high, dry ridges, on our timber soil, on our stony points, and along the slopes of our river bluffs, it will flourish and bloom in all its beauty.

Within the last ten years I have seen growing up over the prairies of Clayton county, many young and flourishing orchards, but to-day many of them are gone; and I noticed that those who cultivated the most have met with the greatest loss, while those that have been planted on timber soil, and have received less cultivation, have passed through our hardest winters untouched, and are paying their owners every year an ample reward. I have also noticed that those who have manured their trees have lost them all, in almost every instance, while those who cultivited slightly, and used no manure, have still fine young orchards. I have cultivated the ground around certain varieties in my garden, and have lost the trees, while the same variety standing in the sod, not twenty feet away, were still sound and good. Certainly these observations ought to teach us a leeson in the care and management of our fruit trees. Now, notwithstanding all this, young trees must be cultivated for four or five years after setting. We must take the risk but whenever a person is apprehensive that he has cultivated too highly, and a hard winter is approaching, let him wind his trees with straw, or rags or anything that will give them a covering. I have never seen a tree winter-killed that was wrapped with a covering during winter.

All are aware that there are some varieties of apples that are more hardy than others, but it is also true, that a variety may prove hardy with one man, and tender with his next door neighbor, and this results from the fact that one may have the tree on dry, thin soil, while the other is set in mud; one may have used no manure, while the other may have sickened his with its application; one may have kept his cattle out of orchard, while the other has turned his in; and when these two men meet at the Farmer's Club they are sure to get up a quarrel over the hardiness of different kinds of fruit. I believe, with care and observation, the most tender varieties of apples *can* be grown in our country, I have proved it; you have proved it; and Mr. Grinnell, of my county, has proved it, and a hundred others whom I could name, have proved it. With all these facts and observations before us, let us go on and leave the croakers to be our customers, and perhaps they will learn wisdom when too late. I rejoice to hear of the prosperity of your Society, and extend to you and others my sincere and hearty thanks for the noble stand you have taken in the cause of horticulture in our young and noble State.—*Transactions I. S. H. Society.*

Transplanting Pie-Plant.

FRIEND MILLER:—Will it do to take up and divide the stools of Rhubarb and plant out in the fall? My plants have stood so long that they are very large and I think need division and re-setting to produce the best results. I wish to know the most favorable season to do the work, and whether fall will do. JOHN H. STIER.

Clyde, Jasper Co., Iowa.

REMARKS.—Rhubarb, more commonly called pie-plant, may be taken up, the eyes separated with a sharp knife and re-set at almost any time in the season from early spring to late fall, though we would advise either spring or fall for the work. If spring, do the work just as soon as the stools can be dug, or if fall, let it be after the plant is pretty well through with the season's growth. The plant should not stand more than three or four years without division and replanting.

For the Western Pomologist.

The Russian Hagloe and Dutchess Oldenburg.

Over nearly all portions of the West the Hagloe apple has been disseminated under the name of Dutchess of Oldenburg. At county and state fairs for several years the Hagloe has been exhibited as the true Dutchess, and until recently its identity has not been questioned. By looking at Warder's or Downing's description of the two apples, it will be seen they are astonishingly alike. In nursery the leaf and habits of growth of the two are also much alike. In orchard, however, the trees in growth are very *unlike;* the true Dutchess being a somewhat upright and round headed tree, and the Hagloe having a peculiar stragling, twisting habit of growth. The Hagloe bears the largest and best apple. Though not as highly colored as the Dutchess, it has the off-setting advantage of not rotting so soon after ripe. So far as I know, the Hagloe is as hardy as the Dutchess, and if it proves upon all soils as good a bearer it will be even more valuable for general cultivation. The writer was misled by some of the early introducers of the Dutchess at the West, and must confess to having had a part in disseminating the Hagloe as the Dutchess. I originally received the Dutchess under the name of *Borovitsky*, which is perhaps its original Russian name. It is now fully time that the Hagloe and Dutchess, or Borovitsky, should be disseminated and exhibited under their true names. At the proper time I shall be pleased to furnish specimens of the apples and leaves of the two sorts for illustration in the POMOLOGIST. JOSEPH L. BUDD.

Shellsburg, Iowa.

REMARKS: We shall be very glad to present to the readers of the POMOLOGIST illustrations of the apples named.

Fruit in Western Missouri.

MARK MILLER, *Dear Sir:*—Strawberies injured by early drouth. Late varieties have improved some since the late rains, crop light. Raspberries—Miamies, just ripening—large and fine—bearing heavily. Blackberries—Kittatiny—setting full, promise a good crop. Gooseberries and Currants but few—Cherries, English Marello and common Marello a few—generally a failure. Peaches—about one-fourth crop of seedlings; none on the budded varieties. Quinces, none. Pears—a few scattering ones on many of the trees, just enough to cultivate the taste. Plums, none to speak of. Apples—about one-fourth the usual crop. Late bloomers and those on northern, cool exposures, have the most fruit. Grapes—promise a most bountiful crop, clusters full and fine as could be desired

The injury was done by the April freeze We had south winds and warm weather up to the 15th, of April—bloomed fuller than for many years, but on the morning of the 16th, our fondest hopes were blasted. Yet, strange to say, we have a sprinkling even of Bartlett Pears. GEO. L. PARK,

Parkville Mo.

Fruit on the Missouri Slope.

MARK MILLER: Our fruit prospects in Pottawattamie county are not very flattering. Apple trees bloomed quite full, but fruit light. We had a heavy storm of wind at the time of bloom, which, no doubt, was a prolific cause of failure. That, with the hard freeze of April 15, just before the buds opened, which must have reached their vitality, did the work. Still we shall have some apples, and I hope to send you some fine specimens from the slope next fall.

Cherries almost a total failure and trees badly injured, but luckily, they are mostly of the common Morello, bought of rascally tree-peddlers for the Early Richmond, and at big prices. With these drawbacks, however, I see nothing that should discourage fruit-tree planting. At present (June 23rd,) some of the cherry trees badly damaged, are in bloom. Whether they will recover, or whether it is the last struggle for life, time only can determine.

D. B. CLARK.

Council Bluffs.

For the Western Pomologist.

Fruit in Southern Wisconsin.

The prospects for fruit is not flattering in this region. Strawberries winter killed badly, and not having over three inches of rain since March all told, we have had very few strawberries, about one-fifteenth of our usual crop. The excessive heat of May and unusual drought has been detrimental to all branches of horticulture and agriculture. For 24 days of May the thermometer noted 75 to 90 deg.

A light frost May 28th, the only one during the month. The first ripe strawberries May 27th, while last year they were picked June 11th.

Prospect of raspberries is not flattering, though while writing this we are having a fine shower, sufficient to wet the ground three inches; at the same time, one mile from us, not rain enough to lay the dust. Should the showers be continued we may have half a crop of raspberries. The most *promising* on the list I would put in this order: Of red, Philadelphia and Purple Cane; of black, Doolittle, Miami, and Davison's Thornless. The last does not prove as prolific as I expected owing, probably, to its vitality being injured last Oct. 24th to 27th, when for four mornings the thermometer averaged 12 deg. Farenheit, killing mountain ash trees, three feet high, to the ground.

Grapes, thus far are the most promising of anything in the fruit list. Almost everything large enough is full, yet the heat and drought are dropping many berries from the bunch, in consequence the bunches will be loose.

First on all lists come Concord and Delaware, or as some of our amateurs would like to have it read *Delaware* and Concord.

The apple, the fruit of all fruits, now deserves our attention, and first we will mention the first five varieties recommended for the N. W. for *general cultivation:*

Red Astrachan, not bearing; bore full last year.

Dutchess of Oldenburg, full, also full last year; have trees 6 feet high, loaded.

Fameuse, about half a crop; bore full last year.

Talman Sweet, hearing nobly; no fruit last year, but doing well this.

Golden Russet, bearing *full;* bore *heavy* last year.

We might go on and name other varieties, but we will leave that and other varieties of fruit till some other rainy day. Hoping that will come soon,

GEO. J. KELLOGG.

Janesville, Wis., June 25.

For the Western Pomologist.

Managing Hedges.

MARK MILLER—*Dear Sir:* I want a little information on the subject of hedging.

I have a few rods that were set out from five to six inches apart. It is now three years since it was set out. I have cut it back twice, to within, say ten inches of the ground. In a few places where plants were missing, I laid down some across the open spaces, after the style of what is called "plashing."

It is now about fifteen inches high, and *very thick*, with a very luxurious growth, but somewhat uneven at the top, some of the shoots being much higher than the others. Such being the case, will you, or some of your numerous correspondents, please let me know through the POMOLOGIST, at what time to prune, or cut back, during the summer? Ought it to be *cut back now?* If cut back this summer, how often, and at what time?

R. B. ARNOLD.

Urbana City, Iowa.

REMARKS.—About the 20th of this month we should cut it back to within 20 inches of the ground. Should trim no more till next spring; then trim to 2½ feet, and the following July not lower than 4 feet. If there is a good stand, you will then have a hedge that nothing made of flesh and blood will like to go through—not even the smallest bird.

Fruit in Central Missouri.

FRIEND MILLER:—The apple crop in these parts is a very slim one, owing to the late frost.

Pears but a small show. Peaches not a tenth of a crop.

Of small fruits, the strawberry crop was a good one. Raspberries a most tremendous crop, such as I have never seen before.—Grapes, all right and full crop. Gooseberries nearly a failure. Blackberries, overwhelming; hundreds of bushels of wild ones in this immediate neighborhood.

I have a new one that has now fruit nearly

ripe, and in blossome yet; a very large and elegant blackberry, but it cannot get before the public in trade until we have thoroughly tested it, and it appears to be worthy.

In some future letter I will give you my notes on the varieties of small fruits if desirable.

The POMOLOGIST pleases me greatly; may it have a large circulation (for I know it will do much good) is the wish of your subscriber.

SALUEL MILLER, *Bluffton, Mo.*

Constitution of Iowa Horticultural Society.

MARK MILLER, DEAR SIR.—I hope you may find it convenient to publish the Constitution, by-laws, rules, and regulations of the Iowa State Horticultural Society—or may be you could send me a copy. If so, you will confer a favor by sending me a copy. I am engaged in fruit growing and nursery business and hope to have the privilege of meeting with the fruit growers and nurserymen of the State more frequently in the future than in the past.

R. M. MOYER.

Baker, Jefferson Co., Iowa.

REMARKS.—We copy the Constitution from our volume of the transactions of the society for June,—the only one we have at hand. We think a code of by-laws has been adopted, but think it has not appeared in print. It may come in the transactions for 1869. If so, will give it a place in our columns.

CONSTITUTION.

ARTICLE 1.—This Society shall be called the Iowa State Horticultural Society, and shall have perpetual succession.

ARTICLE 2.—The object of this society shall be the promotion and encouragement of horticulture and arboriculture, by the collection and dissemination of correct information concerning the cultivation of such fruits, flowers and trees, both deciduous and evergreen, as are adapted to the soil and climate of Iowa.

ARTICLE 3.—The officers of this society shall consist of a president, one vice president, a secretary, treasurer, and ten directors, who together shall form a board for the general supervision of the affairs of the society. The officers shall be elected annually, at such time and place, and in such manner as the society may determine at the time and place of holding its annual exhibition in January. Said board may adopt such by-laws as shall be deemed necessary for the benefit of the society, and not inconsistent with this constitution and the laws of the State of Iowa, and change the same from time to time.

ARTICLE 4.—The secretary shall keep an accurate and full record of the proceedings of the society. He shall also open and carry on a correspondence with such fruit-growers, florists and horticulturists in general throughout the state as manifest an interest in the purposes of the society. He shall annually make up a report for publication, embracing such information upon fruit-growing as may come within his reach, with a full report of the business affairs of the society, and shall be allowed a reasonable compensation for his services.

ARTICLE 5. The treasurer shall have charge of the funds and other property of the society, and dispose of them as decided by the board of officers. He shall pay out no money except on the order of the president, and countersigned by the secretary. He shall make up a full and true report of all money and other property put into his hands for the benefit of the society, with disbursements and vouchers annually, and present the same to the secretary on or before the first day of the meeting in January, and shall be required to give bond in such sum, and with such securities as the board shall direct, which bond shall be approved by the president and filed with the secretary.

ARTICLE 6.—All accounts brought against the society shall be audited by the board.

ARTICLE 7.—The members present, of the board, shall constitute a quorum for the transaction of business at any regularly called or adjourned meeting.

ARTICLE 8.—Any person may become a member of this society by the annual payment of one dollar.

ARTICLE 9.—The fiscal year shall commence and end at the January meeting of each year, and the retiring board shall settle the business of the previous year.

ARTICLE 10.—This constitution may be amended at any annual meeting by a majority of the members present.

FRUIT PROSPECTS IN CONNECTICUT.—Our esteemed correspondent, Mr. A. Veitch, of New Haven, Conn., writes us June. 16. "Thus far the prospects of a full crop of fruit of the leading kinds is very good in this neighborhood. Up to March the winter was unusually mild, which gave rise in some minds to the apprehension that the trees might be injured, but time has shown the temperature had not been maintained at sufficient pitch for them to feel 'the blind motions of spring,' and awake them from needful repose. At flowering time the apple and pear trees were perfectly beautiful, the fresh, green foliage contrasting and setting off so finely a wreath of flowers seldom equalled—never excelled. It is true, at this stage of growth, large numbers of the fruit are falling, but seemingly not more than what will be for the good of those which remain to be harvested.

Raspberry Rust.

Wm. Parry in an essay read before the Pennsylvania Horticultural Society, says:

A fungus or rust that has for years been preying upon the wild blackberries and dewberries and recently has attacked the Dorchester Blackberry, devastating in its march as certainly as the fire blight on the pears, or the yellows on peach trees, has also commenced its ravages on the Black Cap Raspberry. Three years since we first discovered it on a small patch of about five acres of Doolittles, and were surprised to find that every plant affected lost much of its vitality producing no blossomes and of course no fruit. It first appears on the under side of the leaves, of a reddish yellow incrustation; as it approaches maturity a fine dust of a yellowish cast is formed, which by a little disturbance is wafted by the wind to other bushes near by. The second year there are numbers of small spindling shoots sent up producing no fruit, but having a weak sickly appearance. It has spread so rapidly as to destroy nearly the whole of that patch of black raspberries, which we intend to burn and plow the ground for a fall crop of vegetables.

Increasing the Flavor of Fruit.

For a number of years past there has been a decided tendency on the part of fruit growers, and more especially those who cultivate for market, to grow only large fruit, or rather varieties of small fruits of a large size. We are not surprised at this, from the fact, that however insipid and flavorless a strawberry may be, it will always command the highest price in the market, if it is only large and fine looking. Hence, with the cultivator, it becomes a matter of dollars and cents. Fruit growing for profit is his business, and it is to such generally, a matter of indifference whether the fruit is of fine flavor, or otherwise, so that it finds ready purchasers at good figures. It would be simply folly to argue against such a spirit, and as long as people are content to sacrifice the sense of taste for that of sight, we have no right to object.

But it does not follow, necessarily, that large fruit is obtained at the expense of its flavor. Every horticulturist knows that a wet, cloudy season invariably produces greatly increased acidity in the small fruits, and this is especially noticable in the peach and strawberry. This result is, of course, beyond human control. But not so in some other cases. We believe that it is in the power of a cultivator who has not too keen an eye to profit, to *command* a flavor. "The method," says a first-class authority on the subject, "is to thin out severely."

This same writer assumes that if a peach or plum tree is allowed to mature five or six dozens of fruit, where only half that quantity should have been permitted, the result will be a flavor of decidedly inferior quality. A case in point is cited: A favorite plum tree in 1861 bore but a light crop of fruit, all of which was carefully preserved. The aroma of the fruit, when made into puddings or tarts, was delicious. In 1862 the crop of plums on the same tree was so abundant as to hide the leaves. The usual quantity was preserved, but the fine aroma of those of the previous year was wanting. From all of which he insists on the following: "*By thinning you make indifferent fruit good. By crowding you make good fruit bad.*"

We are aware that it is asking a great deal of an amateur to thin out fruit, but it will pay in the end, when quality and not quantity is desired.—*Journal of the Farm.*

PEACH TREE BORERS.—A peach-grower says that he had some peach trees that were infested with borers, bearing no fruit. He removed the worms, replaced the earth, and took hen manure, over which he poured hot water, stirred it, and applied some of it to each tree, pouring the hot liquid around the trunks of the trees, where the borers enter. The next season the trees bore a good many peaches that withered; but the second year, and after that, they bore large, delicious fruit. It may be that hen manure will keep off the borers from peach trees; and if so, it will be well to try it.

THE MORSE APPLE.—A correspondent of the *Farmer's* (Min.) *Union* planted six trees of this variety four years ago, from which he claims to have gathered three pecks of apples last season. The apple is of large size, a good keeper and of good quality. The tree is perfectly hardy—not so much as the tip of a twig winter killed.

FRUIT, VS MEDICINE.—An eminent New England physician has remarked, after nearly forty years' experience, that when the fruit has been cut off in the towns to which his practice was mainly limited, there was always an increase of bilious troubles, and usually a larger than average amount of general sickness.—*Ex.*

FLORICULTURE

The Geranium.

This old and well-known flower, which has graced the gardens and windows of the people as far back as memory reaches, is now being brought up to a high standard of perfection by the introduction of some very fine new double varieties, mostly originated in France by that chief of geranium growers, Lemonis. They are of all the shades of scarlet; and one of the last new ones is a bright pink, very close and compact, extra strong, of dwarf growth, the truss well up from the foliage, and some fine heads of bloom, having as many as eighty perfectly formed flowerets fully expanded at once. They are being offered by our florists here for sale this season.

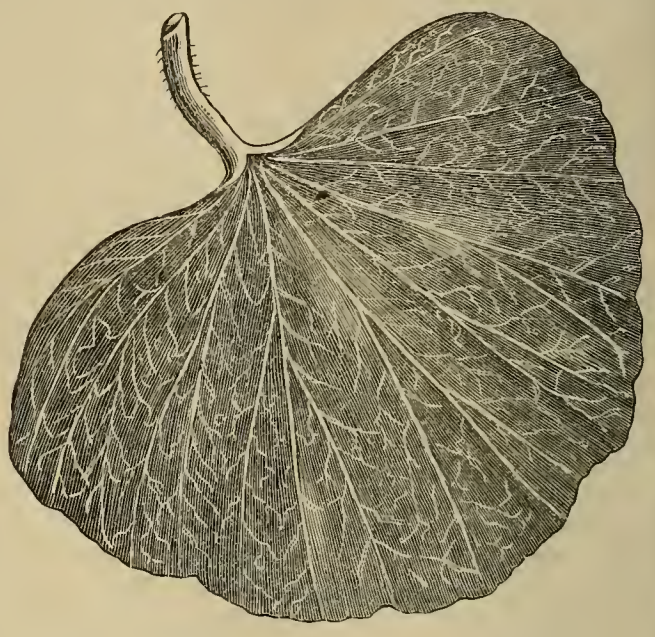
Most of the new varieties have the desirable dwarf growth that shows so well in small clumps, or for the outside line in a large bed of this splendid flower, which is the best way to grow them. If room can be spared in the flower garden, nothing can surpass a fine bed of them of all the shades from bright scarlet to white. The double are not the only ones that are putting in their claims this season; some of the new Zonale varieties are grand in color and strength of growth, and will delight all lovers of a fine show of bloom, with their fine trusses of flowers, some of which are over five inches in diameter, and every single flower fully expanded. Any one can grow geraniums. All they want is plenty of sunlight, a good strong soil, and a little water, if the season is very dry. If you have a small bed try a few of them, and you will always grow them afterwards. Every season brings us new varieties, and before long we will have the double white, which is what all geranium growers are now trying after. —*Ruralist.*

Monthly Roses.—No plant requires closer pruning than the rose; the best blossoms are always found upon the stalks which shoot fresh from the roots. If the branches are cut off one-half, the buds will be much more numerous. By all means plant them in the open ground, and manure them thickly. All window plants should be changed in position at least once, and often-times twice a week. Give all the sunlight the windows afford—the more the plants receive, the more rapid their growth, and the more numerous the flower.—*Gardner's Monthly.*

The Calhoun Rose.—When John C. Calhoun's body lay in state at Charleston, Col. John T. Sloan of Columbia took up a white rose from among the profusion of flowers that lay on the bier, carried it home and planted a slip. It throve, and after four transplantings is a fine large tree, in Col. Sloan's garden and is called the "Calhoun rose."

Golden Veined-Leaved Geranium, or Geranium Reticulatum.

Among the novelties (says the *Rural New Yorker*) from which to be introduced the coming season, and is said to be of superior beauty in its compact trusses of bloom as well as its foliage of golden veins or ribs, as shown in our drawing of a leaf we took from a plant in the greenhouse of John Saul, Washington, D, C.—We have never seen its bloom, but the golden netting or marbling of its leaves was new to us, as well as beautifully distinct. As a house or pot plant, it is an acquisition, being, beside its distinctness compact dwarf, or rather bushy in in habit.—For out-door bedding it is a question yet of trial as to how it will retain its character under the blaze of sun and sudden changes of temperature that belong to our country.



The Rose of Sharon.

The rose of Sharon is one of most exquisite flowers in shape and hue. Its blossoms are bell-shaped, of many mingled hues and dyes, and its history of legendary are romantic in the highest degree. In the East, throughout Syria, Judea and Arabia, it is regarded with the profoundest reverence. The leaves that encircle the round blossom dry and close tight together when the season of blossom is over, and the stock withering completely away from the stem, the flower is blown away at last from the bush on which it grew, having dried up in the shape of a ball, which is carried by the sport of the breeze to great distances. In this way it is borne over the sandy wastes and deserts, until at last, touching some moist place, it clings to the soil, where it immediately takes fresh root and springs to life and beauty again For this very reason, the Orientals have adopted it as the emblem of the resurrection The dried flower is placed by the Judeans in a vase of water beside the beds of the sick, and, if it expands by moisture, the omen is considered favorable. If it does not, the worst at all times is feared.—*Ex.*

Palms for the South.—A correspondent of the Scientific American proposes the introduction to the Southern States of the date palm, the sugar palm and the cocoanut palm—those palms furnishing fruit, sugar, oil, fiber, etc. He argues in favor at least the experiment of introducing these Indian palms; and he holds that, if properly planted and cared for, they will flourish and become profitable to the South.

Suckers of Roses.—Those who have roses budded or grafted on the mannetti, or some other wild stock, should watch carefully at this season of the year and cut away the sucker sprouts from the wild root, or they will soon be scolding the nurseryman for an error, which is only the result of their own neglect.

Where Flowers Came From.

Some of our flowers came from lands of perpetual summer, some from countries all ice and snow, some from islands in the ocean. Three of our sweetest exotics came originally from Peru; the Camellia was carried to England in 1739; and a few years afterwards the heliotrope and mignionette. Several others came from the Cape of Good Hope; a very large calla was found in ditches there, and some of the most brilliant geraniums, or pelargoniums, which are a spurious geranium. The verbena grows wild in Brazil; the marigold is an African flower, and a great number from China and Japan. The little Daphne was carried to England by Captain Ross, from almost the farthest land he visited toward the North Pole. Some of these are quite changed in form by cultivation; others have become larger and brighter; while others despite of all the care of the florists and the shelter of hot houses, fall far short of the beauty and fragrance of the tropics.

Among improved ones is the dahlia. When brought to Europe it was a very simple blossom, a single circle of dark petales surrounding a mass of yellow ones. Others with scarlet and orange petales were soon after transplanted from Mexico, but still remained simple flowers. Long years of cultivation in rich soil, with other arts of the skillful florist, have changed it to what it now is—a round ball of beauty.—*Riverside Magazine.*

Orange Blossoms.—In this country orange flowers are worn by a bride on the occasion of her wedding, simply as a fragrant ornament to lend still further grace and beauty to the fair being, who is about to give herself away for life. In the interior of France, however, these orange flowers are worn as a testimonial of purity, not only of the bride herself, but of integrity, and morality in the character of her relatives. In certain provinces its adornment is considered as a sacred right, obtained by undoubted character, and as such proudly maintained.

For the Western Pomologist.

Swarming of Bees in July.

In various parts of the country swarming must be postponed until July, on account of a deficiency in forage during that month. many readers may think this statement rather absurd, because during that month white clover is in bloom, and an abundance of honey; but not so—white clover is not found everywhere yet, and where white clover or cultivated bee forage is not found, natural swarming will not take place until the Linden (Basswood) or some other honey crop comes in bloom, and natural swarms should not be made until such a time.

Further, success depends upon certain conditions, which must be strictly observed, or the attempt of making an artificial swarm may result in failure:—

1st. A stock should never be divided until it has become strong in population. If the strength of a colony is crippled by a division, before the colony could spare a sufficient number of bees to make a proper swarm, neither portion would be able to generate sufficient heat for breeding and comb-building during a cool night, nor would the *amount* of bees be sufficient to attend to both of these duties; while on the other hand, if it is left until it can spare a swarm, both divisions would readily fill their hives, lay up a sufficient amount for their winter food, and give a good profit in surplus honey to their owner. Should the season prove to be a poor one after swarming, weak swarms will usually be deficient in population and winter stores, and the loss of both colonies might be the result. Should any stock be too weak to be divided early, it should only be divided in the manner here described, or not divided that season. From such non-swarming stocks—if they become strong—a large amount of surplus honey is usually obtained. To be sure that your bees may prosper, even in the poorest season, keep *strong* stocks, and *strong* stocks only.

2d. The method employed in artificial swarming is of no little consequence, whether in harmony with or in violation of the nature of the bees. Various methods are known, applicable under various circumstances of time, conditions of hive and colony.

Before making artificial swarms, a number of queen-cells should be started, by dividing a strong stock about ten days previously, so as to furnish each artificial swarm with a capped queen-cell.

METHOD OF MAKING ARTIFICIAL SWARMS IN JULY.

In forming swarms upon this method at least five moderately strong swarms are required, four of which must be in movable comb hives, and the operation must be performed when most of the bees are abroad.

Select your stocks, take two combs from each, brushing all the bees back into their hive, or else the queen might be removed; insert two empty frames in each hive to fill the vacancy, placing them near the center, with a full frame between. Insert the eight removed frames or combs in a new hive; remove a fifth strong stock to a new stand, and set the hive containing the comb in its place; the bees returning to their old stand furnish sufficient population to protect the brood. About six hours after insert a capped queen-cell into the new hive.

By this method, no stock loses more than two combs at one time, and, if the weather is favorable and forage abundant, the loss is soon regained, so that a new swarm can be made from the same five stocks as soon as the empty frames are filled; even during the month of August, should early frost cut short all pasturage, the new swarm is never too small, or the old stock too much reduced, to be in good condition for wintering.

The comb inserted in the new hive, when making the swarm, should be placed together, the brood comb in the middle, and the combs containing the least, or no brood, nearest the outside, and next to them the empty frames, *if any;* (most of the movable comb hives now have but eight frames). In artificial, as well as in natural swarming, there are liabilities of losing the young queen whilst out to meet the drones, therefore examinations must be made from time to time. Examine the queen-cell in the new swarm in about five days, to ascertain that it is not destroyed; in such a case, another must be inserted immediately; if the queen-cell is all right, examine again in about ten or fifteen days, whether or not each swarm has secured a *fertile* queen.

Look carefully for eggs in the cells, and if no eggs can be seen in twenty days after the queen hatches, it is generally certain that the colony is queenless. All this examination and delay would be avoided if we have a fertile queen to be introduced into the new swarm at the time of making the swarm; but when we introduce a queen-cell, and the swarm does not secure a fertile queen in the time named above, we must now furnish them with a fertile queen to furnish them with another queen-cell, and repeat the operation, would require too much time, and reduce the colony to be of almost no value against the time this second queen would become fertile. It is an excellent opportunity to insert an Italian queen, at the time of making the new swarm, the operation of introducing her is perfectly safe. Eggs would be laid without interruption, and a new stock of bees would be raised during the time it would require to raise a queen and the time required before she becomes fertile. E. KRETCHMER.

Red Oak Junction, Iowa.

Do Bees make or simply gather Honey.

Whether bees *make* or simply *gather* honey, seems yet to be a disputed point. There are writers who assert that the nectar of the flowers gathered by the bee is simply a portion of its food and drink, and that the honey deposited in the cells comes from the honey-secreting glands, which are analagous to the milk-secreting glands of other animals; that the honey bag of the bee performs the same office as does the udder of the cow. In other words, that bees *make* their honey. Such writers argue that if it were not so, when a bee gathers molasses it would deposit molasses, etc., while the fact is, that the various kinds of materials upon which the bee works simply modify the character of the honey,

There are others who reason quite differently—who assert that the bee simply *gathers* honey formed by Nature in the flowers. Such persons attribute the difference which is observed in honey that every kind of flower secretes a mellific substance peculiar to itself, partaking, to a greater or less extent, of the properties of the plant upon which it is found. Hence, some kinds of honey are very obnoxious—others even poisonous. In some localities, people think it is not safe to eat honey at all until after it has been boiled—a process which is thought to evaporate the poisonous qualities. When "doctors" so disagree, it might be considered presumptuous for even the Scientific Press to decide. So we leave this matter still an open question.

We believe, however, it is generally agreed that bees never mix the different kinds of honey when depositing them in the hive.—If they commence to work on white clover (which makes the best honey), so long as that kind of "feed" can be obtained, they will work on nothing else; and all the white clover is deposited in cells by itself. When they leave that for buckwheat or any other food, they commence depositing in adjoining cells, or on a separate piece of comb.

Experienced bee-keepers, who are aware of this instinct, often remove the combs which are filled during the continuance of the clover; because after the cells are all filled it is difficult to distinguish this from any other. Exhibitors of honey at fairs not unfrequently take advantage of this to secure a choice white article, with which to secure the highest prize, when the balance or average of the stock would be quite inferior.—*Scientific Press.*

Bees are always more irascible when their hives are disturbed after it is dark; and as they cannot see where to fly, they will alight on the person of the bee-keeper, who will be almost sure to be stung.—*Langstroth.*

BEE STING.—An exchange says a solution of carbolic acid—one part of acid to sixty of water—is an almost instant remedy for the sting of a bee.

BEE-KEEPERS TO WESTWARD.—Bees and bee-keepers are wanted in the mining regions of the Rocky Mountains and the great plains beyond. There the honey-bee in its wild state is unknown and sugar is not produced. A country of sufficient extent to form ten great States, invites the intelligent apiarian with his stocks, whilst the Pacific Railway offers the means of speedy transportation.

BEES IN APRIL.—The month of April is frequently the most critical time for bees during the whole year. Colonies of bees that had barely enough honey to last them till now are in danger of starving if not fed some. Even after fruit trees bloom a cold snap may stop the honey supply and prove fatal. All stocks out of honey should be fed. In fact, if you want early swarms, populous stocks and a good yield of honey, all of your colonies should be fed some to induce early breeding, whether they have much or little honey.—*Western Ruralist.*

—Ten tons of Rhubard are sold daily in the Boston markets, which makes the sugar trade lively.

Borers.—Mr. J. C. Dagget writes to the Maine *Farmer* that he keeps the borers out of his apple trees by throwing lime, or ashes, or both around the roots of the trees.

Gen. Hiram Barney.—Where is he? Several of our exchanges tells us that Gen. Hiram Barney has the largest vineyard in Iowa. We'd like to know its whereabouts.

Pomology in Michigan.—The State Pomological Society of Michigan will have an exhibition of fruits next fall, in which the pomologists of other States are invited to participate.

Great Yield.—Mr. A. Hopkins of Mexico, Mo., writes *Colman's Rural World* that he has picked this season 303 quarts of strawberries from 600 square feet ot gronnd. This is more than a pint to square foot.

Fruit in New Hampshire.—The *Mirror and Farmer* says, taking into consideration all the causes that are likely to affect the fruit, we conclude, with fruit-growers generally, that there will be a great abundance this season.

Fruit Exhibition Postponed.—The Exhibition of the Indiana State Horticultural Society has been indefinitely postponed, on account of the failure of the fruit crop, caused by the drought.

Sundries.—The fruit crop in south-east Missouri is reported nearly destroyed by the caterpillers. In western Michigan, especially in the region of St. Joe, the crop is represented to be as large as the trees ought to bear.

The Monthlies.—Peterson, Riverside, and Arthur's monthly magazines for July are received, all in good time and overflowing with good things intellectually, in which they do always abound.

Large Willow Tree.—*A willow tree* in front of the house of A. P. Ladd, on the road betweeu Laconia and Meredith Village, N. H., is 5½ feet in diameter, and its limbs have a spread of 95 feet. 44 years ago this tree was merely a stick which Mr. Ladd stuck in the gronnd.

Chicago Fruit Item.—In the fifteen days following the 23d of May, the Illinois Central Railroad took into Chicago 480,106 pounds of strawberries, amounting to 30,533 bushels. This immense amount of fruit was the product of Southern Illinois.

Our Schoolday Visitor—An illustrated journal for boys and girls. The teachings of this work for the juveniles are of a high, mornl tone. Than this, no more useful and interesting paper can be placed in the hands of children. *Doughaday & Becker*, Philadelphia; $1.25 a year. To clubs at reduced rates.

The Apiculturist—Is the name of a new monthly journal on the Bee, in quarto form, eight pages; W. G. Church, editor, Mexico, Mo. $1.00 per year. The *Apiculturist*, like the Pomologist, covers a field heretofore unoccupied, and supplies a want felt by bee-keepers in the West—for bee-keeping in the West has its peculiarities, as well as fruit-growing. Judging from the four numbers before us, the *Apiculturist* will be a valuable assistaot to the bee-keeper, and it is "dog cheap" at the subscription price.

State Fair Premium List.—We have received from secretary Shaffer for distribution a package of premium lists for the seventeenth annual Fair of our State Agricultural Society. Fair at Keokuk, Sept, 12 to 16, inclusive. Pesrons at a distance, who may wish a copy should address Dr. J. M. Shaffer, *Sec'ry*, Fair, field, Iowa,

June Meetings.—In pamphlet form we have the proceedings of the Montgomery (Ohio) County Horticultural Society for June. Also, of the Alton, Ill., Horticultural Society. These societies hold regular monthly meeting. They are live institutions, and we always find something new and fresh in their mouthly transactions

New Floral Hall.—The Winnebago (Ill.) County Agricultural Society, with its headquarters at Rockford, are building a commodious Floral Hall, and will have it completed and in readiness for the fall exhibition of the Society. It will be 128 feet in length by 60 in width, with no columns to obstruct the view—the roof to be self-supporting.

Small Fruits.—Owing to the drouth which appears to have been felt pretty generally all over the West, the strawberry season was premature and very brief. The crop was light, fruit imperfect and prices low. The raspberry is also a short crop, while currants, so far as we can learn, are a dead failure, and the same may be said of the cherry. Grapes promise a full crop.

The People's Hand Book—is a pamphlet of some fifty pages descriptive of the towns and country along the line of the C. R. I. & P. Railroad between Des Moines and Council Bluffs—interspersed with advertisements and names of the leading business men, with table of stations and intermediate distances along the whole line from Chicago to Council Bluffs. W. R. Vaughn, publisher, Council Bluffs.

The Lady's Friend.—For the first we find upon our table the July number of this monthly. Its contents are varied and made up of well written editorials, and choice contributions. Its illustrations are first class, both in design and workmanship: *Deacon & Peterson*, Philadelphia. $2.50 a year, with a large steel plate engraving thrown in. Reduction to clubs. Specimen copies 10 cents.

The Strawberry and its Culture,—Such is the title of a neat little volume before us on the management of the strawberry. Among the small fruits the strawberry stands pre-eminent in character, while in a commercial point of view its culture is a matter of no small importance to the fruit-grower. Hence, whatever may add to a better knowledge of its culture and propagation is gladly received. From what we know of strawberry culture the author of this work, J. M. Merrick, understands his subject, for we find it full of good, practical matter—written out plain and clear. J. E. Tilton & Co., publishers, Boston. $1.00 by mail.

Deferred Matter.—We have on file reports of the summer meetings of the East Iowa Central, the Nebraska, and the Wisconsin State Horticultural Societies, and of the Iowa Central (Horticulturally) District Agricultural Society. Some of the reports from abroad came in a little too late for this number of the paper. With a crowd of matter already in type for the July number, we feel constrained to hold *all* over for August. We also have already in hand for August, very interesting and able communications upon the following and other subjects: "*Fungous Foes*," "*Horticultural Art*," "*The Coming and Going of Insects*." The writers are men of intelligence and close observation.

Sunday School Publications.—We have received from the publisher, W. W. Dowling, Indianapolis, Ind., several Sunday School publications in pamphlet form, among which are *Little Watchman*, *The Morning Watch*, and the *Little Sower*. They are gotten up in a style at once attractive and instructive to children, and are well worthy the attention of Sunday school officers and teachers.

Georgia State Fair.—We have received from the Secretary of the Georgia State Agricultural Society, the premium list of the Society for the next annual fair, to be held at Atlanta, Oct. 19th to 26th. The premiums are very liberal, throughout, especially on field crops. Best ten acres of clover hay, $250. Same for best ten acres of cotton. Best bbl. sugar, $100. Best five acres of cotton, $200; same for grass. N. S. Kimball, Esq., offers a premium of $500 for the best and largest yield of cotton on five acres, quantity and quality to be considered in the award.

A Treatise on the Culture of Flowers.—We have received from the publishers, J. E. Tilton & Co., Boston, a new volume—"*Seventy-five Popular Flowers and How to Cultivate them*," by Edward S. Rand, Jr., author of "*Flowers for the Parlor*," and other works on floriculture. The work contains about 200 pages, is embellished with many truthful illustrations, and is gotten up in excellent style, as every thing is that comes from this popular publishing house. The work will be found a most valuable text-book for the novice in floriculture, while the more experienced may find instruction in the perusal of its pages. The author, in his preface truthfully remarks: "To grow plants well should be the first aim in the garden—if the plant is worth growing at all, it is worthy to receive every aid to develop in perfection; and one well-grown plant will give more bloom than a mass crowded together." $1.50 will fetch a copy by mail.

Potting Plants.—In taking up things from the ground for potting, care should be taken to have the pots well drained, with pieces of potsherd over the hole The more rapidly water passes through the soil the better plants will grow.

Apples in Minnesota.—We learn from the *Farmers' Union*, Minneapolis, that the apple tree buds in that region have come through the winter unusually sound. Dutchess of Oldenburg, Tetofsky, Red Astrachan, Fameuse, Bellflower, and Wagener are reported to have stood the past winter quite as well in Iowa or Illinois.

Double Peaches.—Three Maryland papers assert that there is, this season, a strange tendency in the peach trees to produce two and even more, peaches from a single blossom. The editor of the *True Marylander* says he has about half a dozen trees in one clump which are full, and yet no one blossom in ten produces a single peach, and that all over the orchard the same tendency "to twin" manifests itself.

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THE WESTERN POMOLOGIST.

Pomology, Gardening, Forestry, Horticulture, Rural Architecture, Bees.

Vol. I. DES MOINES, IOWA; LEAVENWORTH, KANSAS, AUGUST, 1870. No. 8

MARK MILLER,
Editor and Proprietor, - - Des Moines,

J. STAYMAN, Leavenworth, Kansas.

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QUERIES.—We invite questions from our readers upon subjects pertaining to Pomology, upon which information may be desired.—

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Central Iowa District Agricultural Fair.

All things considered, we are led to regard the summer exhibition of this society a success, though the display in some departments was quite meagre. The time for holding the fair was fixed in accordance with the usual run of the seasons for small fruits, such as the strawberry, etc. It is well understood, however, that the season for this class of fruits was some days in advance of the usual time of ripening. Hence it was, coupled with a short and defective crop, that the display of summer fruits was comparatively light. Grown in large variety, the strawberry is *the* fruit in making up a summer exhibition of fruits.

In the strawberry line, Mrs. F. R. West presented two baskets of very fine fruit, one of which represented a seedling of her own originating, and the Wilson. Mrs. West's seedling is a large berry, lighter color, and of milder acid than the Wilson. Season about the same. Mrs. W had also Lum's Autumn and Doolittle's Black Cap raspberries in good condition—fine, large, and perfect.

Rev. S. Haines made a very good show of small fruits. We observed in his collection the strawberry, currant, and raspberry. Mr. H. had taken time, or rather the season, by the forelock. Seeing that some ten or a dozen varieties of his strawberries were ripening up too early for the Fair, he picked and bottled specimens, and thus had them in a good state of preservation. With an ordinary season, Mr. H. would have made a capital display of the strawberry fresh from the vines. Mr. H. also showed raspberries and apples—the Willow Twig, large, sound, and fair.

John C. Smith made a good show of apples, considering the season—Willow Twig, Domine, and Jonathan—all plump and sound and apparently good for an indefinite length of time. We were surprised to find the Jonathan so sound and perfect on the 23d of June. Mr. Smith's *modus operandi* for keeping his apples in so fine a condition, is simply tight boxing and storing in a cool, dry cellar, with the temperature a little below the freezing point. It should be understood that the apple may be frosted without at all injuring it, if boxed or barrelled. In fact, for long keeping it must be kept at a lower temperature than almost any other fruit.

The floral department was very fine—by far the best show of plants and flowers that has ever been brought together in this part of the State. For this very attractive feature of the Fair the public are mainly indebted to the Messrs. Westphall, of Davenport. Their collection was quite complete, and afforded those present a favorable opportunity for purchasing rare plants and flowers for the conservatory and garden. And, we were pleased to observe that the opportunity seemed to be highly appreciated, judging from the purchases made by many of our citizens.

The display of pautry stores was very creditable, though here, as in the fruit department, a very full exhibition was not to to be expected, for the reason that many fruits indispensable to a good show in this department were not in season for preparation. Mrs. F.R. West made 24 entries; Mrs. J. M. Otis 20, and Mrs. S. S. Hoopes, 6—making altogether a very good display of preserves, cakes, biscuit, hams, butter, etc.

The show of stock was confined to horses, alone, and we take it for granted was good, as the knowing ones said it could'nt be beat.

A Geological collection from the Agricultural College, was a point of much interest in the exhibition. It included many specimens of rare interest to the lovers of this science. The collection was in charge of Mr E M. Hungerford, a college student, an enthusiastic young gentleman, who will make his mark some day.

The arrangements for the fair could not have been more complete. Floral Hall was very tastefully festooned and otherwise ornamented, as might have been expected under the supervision of Dr. Shaw, the Secretary of the Association.

For the Western Pomologist.

The Early Pennock.

FRIEND MILLER.—As the *Homestead* has made the statement that the Pennock apple is the most successful bearer of any other variety in this county, (Van Buren), I would state that I do not wish the public to be misled by it. In emigrating to this State in the spring of 1843, my father bought 50 apple trees at Cincinnati, and brought them here, among which were a number of trees of the Winter Pennock, or Big Romanite, and as they proved to be rapid growers and promised to make nice trees, we budded quite extensively from them; and as the trees sold quite readily, a good many were distributed through the county, and we set quite a number ourselves. In from six to eight years they commenced bearing, and have generally borne pretty fair crops of fruit ever since, with an occasional season of abundant fruitage—as last season—and then followed by a season of total failure, as the present one.

The Pennock has probably borne more apples here than any other variety, because the trees are *old and have been a good while in bearing*, but there are many others of the newer varieties that will "beat it to death" at the same age.

The Pennock, too, has been a profitable market apple here, for the very reason that the majority of those who buy fruit, look almost exclusively to the *size* and *color*—regarding the *flavor* as of secondary consideration. One dealer from this vicinity shipped over two hundred barrels of fruit to Des Moines two years ago, about ninety of which were the Pennock, and he actually used the Pennock to sell the balance of his stock with—requiring so many of other varieties to be taken with every barrel of Pennock.

During a residence of 15 years on a farm of my own, I have never been guilty of the folly of planting a Pennock tree, and I never recommend it to others, and consequently keep but few in my nursery.

The real quality of the fruit is third rate, and its tendency to "speck" and consequently to early decay, render it a very undesirable fruit to plant, when so many better varieties can be obtained at the same price.

Keosauqua, Iowa. IRA PHILLIPS.

For the Western Pomologist.

Horticultural Art.

Horticulture is the first employment of man we have any record of. "And the Lord God planted a garden eastward in Eden; and there He put the man whom He had formed," so that if age gives prestige or honor to any occupation, horticulture should have its due proportion. The first practice of the art was very simple, for the earth was directed to "bring forth abundantly" of its varied products; and with a favored climate and soil, luscious fruits, and rich and varied products was the result, and the most man had to do was to pick and eat. As we pass down the stream of time, population increased and spread over the face of the earth, carrying with it some of the different varieties of fruit, practices, etc.; but as the higher and colder regions came to be inhabted, fruits of a different class, less rich and tempting, were found native; a taste for tropical and higher flavored products induced to the attempting the introduction and acclimatizing different varieties; and fruits of many species, classes and varieties came in the course of time to be cultivated; these were further varied by production from seed, etc., etc. Modes of culture, propagation, etc., were wrought out by experiment, after much study and experience, so that great improvements and promising results were attained. Who is there that will say that the experience and detailed practices of these pioneers in horticulture are of no import to his or her individual success, let them be located in whatever section or climate they may be?

Although the details may not be applicable in each individual case, under different circumstances of climate, soil, etc., yet there are certain underlying principles from which we may draw much that will be useful in our practice. If the same varieties are not suited to our locality, we have the experience of pioneers in the sections where they are acclimated, how they proceeded to obtain their present success; having this, added to good judgment and better management, we may work out a better and more perfect system adapted to our own climate, soil, etc., choosing varieties, or originating new ones, that will adapt themselves to our climate, soil, etc. All this is not accomplished in a day, but time and observation, added to patient, thorough culture, will work out wonders. In starting anew, in untried localities, it is needful that we observe nature closely, see what are the natural productions of the section, and study out from them, varieties, improved, that will adapt themselves to the climate, soil, etc. All plants under culture are placed in unnatural circumstances, and the higher the culture the greater the liability to deterioration i health, unless we observe to follow nature closely, gradually blending her with art and culture; in this way we develope theory and advance science.

Science of any kind is of little avail to us till we gain sufficient knowledge to apply its principles in our practice of the art. Some general principles are applicable under most circumstances, in every section and climate, but the details of their application may vary as greatly as the climate, soil, etc.; therefore for an individual educated under certain circumstances of climate, soil, etc., to claim that his details are right, and only right, is perfectly absurd, and exposes his weakness, although they may be the very best under his circumstances. How then, you ask, are we to develope our art in untried localities? We answer, as intimated above, we must look about us, see what nature accomplishes, or allows, under natural circumstances, and in the application of our science to art, we must study, not to do violence to nature's laws, but blend nature with art. Plant a seed, a tree, or vine; cultivate it and study it; follow the workings of the hand by the reflections of the mind, and nature will teach you wonderful lessons; without the growing plant, how useless the teachings of the scientist! Science, wrapt in its somewhat mystical laws, may forget the mere worker, but oftentimes the worker reaps rewards unknown to the most renowned sage. Progress is the great idea of the era; and are we not making rapid strides in the beautiful art of Horticulture? Compare the past with the present, and tell us, oh ye doubters and complainers of the day. W. H. W.

Hartford Co., Conn.

Pasturing Sheep in Orchards.

A correspondent of the *Western Ruralist* relates the results of his experience in pasturing his orchard with sheep and pigs. We venture to say that so long as he continues the practice he will not be bothered in fighting worms, bugs, and lice. We know nothing about sheep in the orchard, but we *do* know that hogs and fowls are the-very best guardians of the orchard against insect life known. We have seen enough of orchard management to convince us, that to have a long lived orchard, and fruitful, it should be kept in cultivation until the trees are fairly in bearing, and then laid down in grass and pastured:

"The effect of pasturing sheep in orchards both on the trees and the animals, is of some interest to those who keep sheep and have orchards which it is desirable to keep in grass rather than in other crops. A good turf is so much nicer to pick and sort apples upon, to speak of no other advantage, that we would like to keep orchards always in grass, could we do so profitably. Unless the trees are altogether too high, one cannot well pasture horses or cows in an orchard; and if we could, these animals do not secure that close, clean sward, desired. Sheep, too, are said to enrich the soil upon which they feed, as well as to improve the land by the destruction of coarse and noxious vegetation.

But we will mention some of the results of the practice. Some years ago, in answer to our inquiry through an agricultural journal, one farmer stated that he had pastured an orchard with sheep for several years. When he first turned them in there was so little growth that he could not cut a graft from the orchard, there being no recent growth of sufficient length and thrift to furnish scions. In three year's time the trees improved materially, making from a foot to eighteen inches of new wood every year. Another reported that sheep pastured in an orchard for two or three years, made great improvement in the fruit. Neither spoke of any injurious effect on the flock.

We have pastured sheep in an old orchard more or less, for two years past, and to its manifest improvement. The grass is better than before, and the trees have a more thrifty look. As to the flock, they have done better than usual. This we attribute in part to changing them from pasture to pasture, frequently, and to the liking they have for their orchard pasture, especially in the hot season.

Orchards often suffer from the want of grazing. They get overrun with weeds and briars, as they will not when sheep are kept in them a portion of the time.

When the fruit begins to fall in any amount, we turn off the sheep and put on the pigs and calves. These remain until the apples are about ripe; then the orchard is cleared entirely until the fruit is cared for. The sheep are afterwards allowed to return, but not to remain to eat the grass down too closely. We rather save a good bite over for spring, or rather save it that the grass may be earlier and better in the spring."

Three Kinds of Black Knots.—The editor of the *Entomologist* thinks there are three kinds of Black Knots, and goes on to define them, as follows:

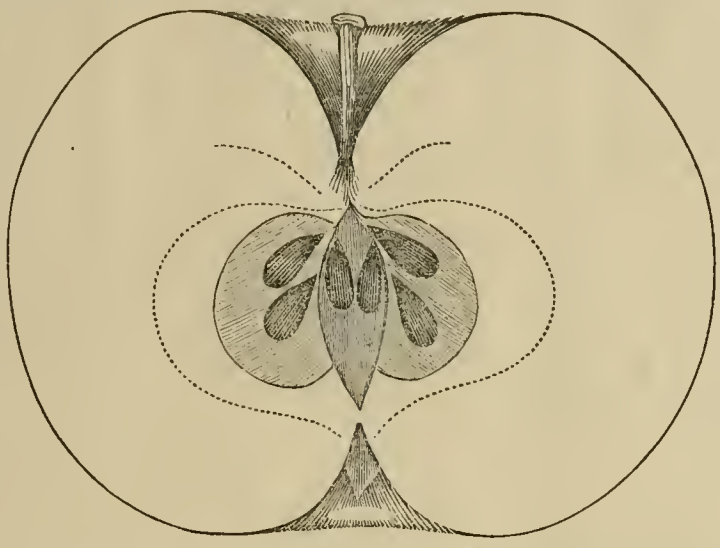
"It was long ago shown in the *Practical Entomologist*, by Mr. Walsh, that the Fungoid disease known under the name of "Black Knot," to infest the cultivated cherry, was quite distinct from the disease of the same name which attacks the cultivated plum; and that the former most probably took its origin from the wild Choke Cherry (*Cerasus virginiana*), and the latter from the common wild plum (*prunus americana*). Hence there followed the important practical consequence, that Black Knot could not spread from cherry on to plum, or from plum on to cherry; each parasitic fungus confining itself to its appropriate tree.

In July, 1869, we were favored by Mr. B. N. McKinstry, nurseryman, of East Sumner, Kankakee county, Illinois, with specimens of Black Knot growing quite abundantly with him, as he says, upon the Miner Plum, but not on any other cultivated plum. A single glance suffices to show that this diseased growth is essentially distinct from the common Black Knot of the plum, although like this last it is evidently of fungoid origin. In fact, both in color, in external texture, and in internal organization, the two differ so widely, that "Brown Knot" would be a far more appropriate name than "Black Knot" for the affection of the Miner Plum.

As the Miner Plum is a cultivated variety of the Chickasaw Plum (*Prunus chicasa*), it would seem to follow that there are three distinct Black Knots, originating respectively from Choke Cherry, from the common Wild Plum, and from the Chickasaw Plum; and further, that the first is confined among our cultivated fruits to cherry, the second to our common tame plums, and the third to the Miner Plum. It is very remarkable that in Europe they have no Black Knot at all, whether upon cherry or plum."

McAFFEE'S NONSUCH.

Fruit large; weight from 10 to 14 ounces; form round, slightly flattened and conic; skin yellow, striped and splashed with light and darker red mixed with purple and gray, giving the appearance of bloom; dots small, scattered; stem medium, slender; cavity regular, wide, and deep, greenish russet; eye small, closed; basin narrow, shallow, furrowed and crimped; core wide, large, open, carpels very large, long and open; seeds large, long, not plump, nearly black, distinct; flesh yellowish white, tender, juicy, sub-acid; quality only good; use market; season, February to May; tree erect, vigorous, strong grower, late bearer, from 12 to 14 years; adapted only to special locations; on rich or low ground it blights very badly and is worthless; on thin soil it may do better.



As there has been and still is much inquiry about this apple, respecting its correct name, we think a few remarks will be of public interest. We have before us a letter from Mr. F. R. Elliott, of Cleveland, Ohio, calling our attention to it in the following words: "I notice one item and one which I hope you will have corrected; it is the giving a fruit its name, and in the same paper calling it by one of its synonyms, viz: *Striped Pearmain*;—syn., McAffee's Nonsuch."

We have also a letter before us from Mr. Charles Downing, of Newburg, N. Y, who says: "I was not aware that McAffee's Nonsuch and L. S. Pearmain were identical until my attention was called to it by Mr. Tanner, since which time I have examined many specimens from various parts of the country and find all alike; also have examined the trees here of both kinds and find the growth and young wood the same in each. As McAffee's is the oldest name it should have the preference, yet oftentimes the name most commonly used is often taken, but it ought not to be so.

You say Wm. Park has got the L. S. Pearmain under different names. Will you please tell me what they are?"

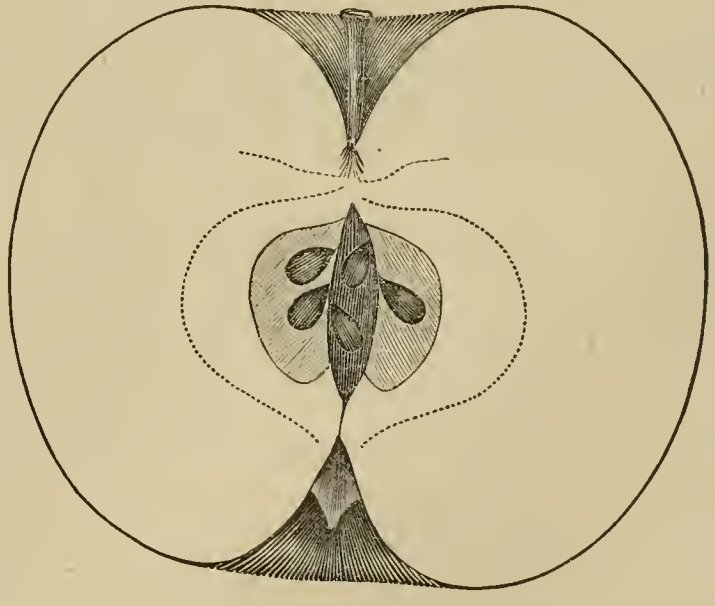
At our State meeting we had this apple presented by Mr. Wm. Park under its different names; also, specimens by Mr. Gray and Dr. Howsley. We were on that committee with Dr. Warder and Mr. Kelsey, and we found all the specimens the same. So well were we satisfied of this fact that we reported accordingly. This only confirmed our previous opinion, for 11 year ago we procured the *McAffee* from Ohio, and 10 years ago the *Winter Pearmain* from Dr. Howsley direct from Ky. We grafted and grew them side by side ever since. Eight years ago we called Dr. Howsley's attention to their identity. We also procured the Missouri Superior and Zeek from Mr. Park and have grown them likewise, and find them the same in every respect. The identity of these we have for years endeavored to prove by the characteristics of tree,—growth, wood, color, etc. In 1866 I called Mr. Downing's attention to the fact that Missouri Superior had numerous names.

Having fulfilled our object, viz: proving their identity, Dr. Howsley volunteered to trace out their history to show which name has priority. We find it here under the following names:

McAffee,	Valaningham,
McAffee's Nonsuch,	Missouri Superior,
Nonsuch,	Park,
Zeek,	Park's Keeper,
Winter Pearmain,	L. S. Pearmain,
Grey Apple,	Striped Pearmain,
Wine Apple,	Wyandotte,
Indian Apple,	New Missouri.

We have also before us specimens of an apple grown by Edwin Farmer, three miles east of Platte City, Mo., so nearly identical with the above that no person could tell them apart at first glance, unless examining the seed; in that alone they appear to be distinct. We have seen the same apple from Wyandotte county, Kansas. Dr. Warder, when here saw the apple, supposed it to be the L. S. Pearmain, as well as Mr. Tanner and myself, when first examined. It may be possible that this apple has been mixed with the above or may be the original McAffee apple as it more nearly agrees with Elliott's description of McAffee than the L. S. Pearmain, for he describes the seed exactly, and if he procured his specimens from Kentucky, it will go far to show that the Farmer apple is an old variety from Kentucky, and may be the original McAffee or L. S. Pearmain, and consequently two original kinds.

We present the following cut and description of the apple to show its similarity:



FARMER APPLE.

Fruit large; weight 10 to 14 ounces; form round, slightly flattened and sometimes oblique and conic; skin light yellow, striped and splashed with two shades of redish purple with numerous small, gray dots, apparently raised on the surface; stem medium, slender; cavily regular, wide and deep green; eye small, nearly closed; segments short, erect and stiff; basin narrow, abrupt, shallow, furrowed; core medium, open, in some specimens compact; carpels wide, hollow; seeds numerous, short, small, plump, pointed, light brown, perfect; flesh yellowish white, tender, juicy, pleasant, sub-acid; quality only good; use market; season, February to May; attractive in appearance. We have not seen the tree growing.

We have before us another apple called Pearmain from Missouri, which we have frequently seen in this market, which is quite distinct from either of the above, but might very readily be confounded with them, but of better quality, which we will illustrate and describe in the September number.

J. S., Ass't Ed.

Horticultural Notes from Florida.

JACKSONVILLE, FLORIDA,
June 24, 1870.

MARK MILLER—*Dear Sir:* Yours of the 14th inst. has just reached me, and in reply to your query, "Did the apples I see acknowledged in the Jacksonville *Union* of a late date from your grounds grow upon the same tree you called my attention to when at your place last September?" I answer that they did. Last June (1869) as I told you when you were here, I picked from that tree ninety seven large red Astrachans, the tree fifteen months old from the graft on the native *Haw*. On the 27th day of March, 1868, I cut the *Haw* off, (about four inches in diameter) about two feet above the ground, and inserted a Red Astrachan graft on opposite sides. The tree is now well on to 12 feet in height, and full of apples Mr. C. L. Robinson has just measured a medium sized specimen, and makes it three inches in diameter.

I can raise apples in Florida as easily as they raise persimmons in North Carolina. We have two varieties of the *Haw* in Florida—the Black and the white, either of which will answer for working the apple on.

I have brought to market this day, and have been doing it for ten days back, peaches, apples, grapes, figs and strawberries. If you wish to know more of what I am doing in Florida, allow me to refer you to the *Florida Land Register*, a copy of which I send you, and in which you will find mention made of my fruit farm. My friends say it does not do my place justice.

Yours, etc., L. A. HARDEE.

[From the Florida Land Register, of May 15.]

A FRUIT NURSERY IN FLORIDA.

The attention of fruit growers at the North, has within the past two years been turned so much toward Florida, and so little reliable and definite information has as yet been elicited in regard to its horticultural capacities, that we can best answer some of the many inquiries made of us, by giving the results of a brief visit to the largest nursery in the State.

The element of time enters so largely into fruit culture, that it must not be expected we are able to give results of long continued experiment, either in regard to the most profitable varieties, or most successful methmethods of cultivation. Rapidity of growth, productiveness, and immunity from disease and enemies are the main results of observations yet made.

The Honeymoon Nurseries, the property of Col. Lucius Hardee, are situated about a mile and a half west from the city of Jacksonville. The soil is of the kind known as hammock, a greyish sandy loam, with a surface broken into gentle elevations and depressions, affording perfect drainage.

Our attention was first called to the

APPLE TREES.

Of these the Colonel has 150 on quince stocks, 500 grafted on the Haw, and 200 on Apple stocks, two years old, all of the Red Astrachan variety. * * * Several had made remarkable growths. We were shown one of three years old, on Quince, three feet high, having fifty-one apples; two grafts on the Haw, only nineteen days old, averaged eighteen inches in length, with twelve lateral shoots four inches long each; another apple, grafted on the Haw, two years old, was nine feet high and four inches in diameter eighteen inches from the ground; another, one year old, on the Haw, was seven feet high.

* * * * *

THE PEACH.

The Peach is at home in Florida, though an opinion has prevailed at the North that they do not succeed well in the latitude of the Orange. * * * We were shown a bed containing 12,000, and now average eighteen inches in height; another of 1,000, one year old, and a field adjoining contained 700 seedlings, two years old. On one of these trees we counted 52 peaches. But four Japan seedlings had made a surprising growth. These were two years old, quite alike in size and appearance, and one of them measured nine feet in height and nine feet through the top; they were loaded with their peculiar shaped fruit.

THE ORANGE.

50,000 baby Orange trees, born of the last shower, their small bright leaves glistening in the sunlight, next claimed our attention. These are all sweet seedlings and give promise of golden harvests to somebody before many years.

THE LEMON.

Not far from the Oranges, is a settlement of their cousins, the Lemons; 9,000 of them one year old. * * * We measured one two years, and found it seven feet high and three inches in diameter; this tree was growing a few feet from a large oak which completely shaded it.

THE GRAPE.

Wherever the Colonel plants a tree, there he puts a Grape, upon the principle, probably, that "in union there is strength," and the appearance of his vines confirms the rule. Two vines, one an Isabella and the the other Scuppernong, growing over a trellis at the rear of the house, are marvels of vegetable growth. They are each two years old, and the only extra care they have received is their having been abundantly supplied with water. The Isabella is an inch and a half in diameter a few inches from the ground. It is literally loaded with fruit, several of the more mature bunches measuring nearly eight inches in length, the fruit being the size of large buckshot A singularity of this vine is, that it is still blossoming and putting out new fruit spurs.

* * * * *

The Scuppernong had thrown up three stalks, an inch or more in diameter each, two feet from the ground. It is trained over a trellis 51 feet long and 12 or 15 feet high, and nearly covers it. It, like its rival, the Isabella, is filled with clustering buches of fruit. A few feet from this vine, is a Scuppernong, one year old; it has two stalks, 20 feet long each. A black Hamburg, two years old, trained upon a peach tree, would, if spread out, cover a space of ten feet square. It had been severely pruned for cuttings, but was well filled with fine bunches of fruit. A Hartford Prolific, standing near the well, was very thrifty and loaded with fruit. There are 48 varieties in bearing, and with the exception of the Concord, were all looking finely, and gave promise of abundant harvest.

We think that the sight of this vineyard will satisfy any Northern man that the attempt to cultivate the vine in latitudes locked up in frost for six months of the year, is a waste of labor and a vexation of spirit. The Grape is the child of the sun, and here, within the reach of every man, is a climate in which the pets of the conservatory flourish in the open air without the slightest protection, and reward the most ordinary care with abundant yield. The fact is full of hope for the State, and of promise to the future cultivator.

Situated on a side hill, sloping gently to the south, with nothing to sustain life but "Florida sand," we found a colony of

STRAWBERRIES

Wilson's Albany largely in the majority, and with the exception of the "Bride of Honeymoon," a variety originated by the Colonel, by far the best, both in quality and quantity. We examined particularly a large bed of the Wilson's. They were planted late in the winter and have had a growing season of only nine weeks. The size and vigor of the plants and the quantity of fruit upon them will hardly be believed.

* * * * *

QUINCE TREES.

1,000 golden Quince, standard trees. We notice one from a graft of this Spring, 14 inches long, and several hundreds, two years old, averaging three to four feet in height.

* * * * *

But here is the prophet's prradise, 1,000 celestial

FIGS,

Only three months old. We measured one Fig tree, two years old, that had four branches, six feet long each.

And if the Grapes promise wine, this plantation of 1,000 soft shelled

ALMONDS

Promise nuts, and one tree, two years old, is near the fulfilment of its promise. It is nine feet high and eight feet through the top, a graceful tree, with pale green, narrow leaves, as ornamental as it promises to be useful. A wild plum stands not far from here, two years old, twelve feet high. It bears a fine red plum and is now full of fruit. Its prodigious growth may partly be accounted for from the fact that it stands near the compost heap.

* * * * *

It is not yet three years since the first day's labor was expended on this ground, which was then a forest. With the few exceptions we have mentioned, there is not a cultivated tree, shrub, or plant over two years old on the premises, and the surprising results attained in this nursery have been brought about through the agency of a genial climate, productive soil, and the skill and energy of its courteous proprietor.

GRAPES IN NEW HAMPSHIRE.—L. G. Brown, of Lindboro, writes to the *Mirror*, that he has twenty-five kinds of Grapes under cultivation, and one hundred and forty vines. Of these, eighty are the Concord, twenty the Clinton, and from one to three of other kinds. He considers the Concord the best grape of the whole. The Isabella is not worth setting in New Hampshire. The Diana will do in favored localities. The Delaware is a good grape. The Hartford Prolific is an early grape, but for profit or abundant crops is not equal to the Concord. Recommends for cultivation the Concord, Hartford, Prolific, Delaware and Clinton. Considers side hill with southern exposure the best site. Top dresses with a compost of barn yard manure and muck, and gets bounteous crops.

For the Western Pomologist.

Pear Blight -Cause and Remedy.

Ed. Pomologist:—I have read much upon the subject of Pear Blight in the past few years, and canvassed the various theories evolved by writers, but according to my view of the nature of this tree malady, what I have read or heard has mainly been the product of speculation. For years I have been a careful observer of its appearance and the time of its presence, and from close thought upon the matter do now determine it to be the result of the following causes:—First, it makes its visits to trees in good soils and generally to those of vigor, and is rarely found in full grown bearers, the growth of a former generation. Secondly, its appearance and the cause, and then I will dictate what I believe to be a specific preventive, if prudently practiced.

Its appearance is plainly that of vegetation perishing instantly, as if by electricity; sometimes it will be in the middle part of a limb, leaving life in either extremity, only however, with posibility of living long in the root end. The time of its presence is almost always immediately after a season of much rain, succeeded by intense sun heat. My opinion, therefore, of this disease is, that it is the result of an extra or superabundant flow of sap caused by very propitious growing weather, which, when blight happens, has been heated to an unhealthy temperature by the sun. It therefore, resembles the effects of a *scald*, and is like a tree dead from the too near application of fire, excepting the presence of wilt, in the latter.

It can not occur frequently, in my opinion in a tree meagerly supplied with sap. Its presence is generally manifested, in this State, in the month of June, before the period of much ripening of wood, *or always succeeding* a generous season of rain and during sultry hot sun-weather.

All nurserymen know the effects of pruning upon a tree of any description. If branches of small dimensions be taken from a tree, the day after by examining the bark of the tree from whence the branches were taken, it will be found to adhere to the wood, or to employ the operators phrase, it would be termed, "the bark has set." Pinch out the bud at the end of a switch and its immediate effect is to check the flow of sap in that part of the tree. A day or two thereafter, the buds thereon will he found to have undergone merely the process of extraordinary maturing. After a period of about ten days vegetation proceeds as usual. Such I apprehend is the the experience of all tree men. If, men therefore, interested in pear culture would be advised against the effects of this disheartening enemy, let them reserve by all means, the pruning of their trees until the month of June, and then, not until immediately after or during the dashing rains incident thereto, and before the sun pours fourth his death dealing heat thereon. Some writers have, on this subject, recommended pruning when the blight has occured as a remedy - this may do good—but it may result in the death of the tree unless care be taken, for a year or so thereafter. The pruning may be considerable from necessity, which will shortly, if seasonable, bring on an extra growth and flow of sap in the remaining limbs, and incur a second attack, worse than the first, at times proving fatal; much less medicine may be used therefore as a preventive, than may become necessary for a cure. Such as practice this suggestion will rarely, if ever, find any blight among their trees, and comparatively realize a remedy therefor in thus preparing them for the sun.

Elias S. Reed,

Dover, Delaware.

For the Western Pomologist.

A Few Words About the Nursery Business.

The nursery business is not a profession in every sense of the term, but it deserves that name.

The truth is, that it takes a long time to learn to be a good nurseryman. It takes considerable skill to pursue the avocation successfully, and it requires much patience, judgment, and common sense, to enable a man following this business to detect the many worthless impositions and failures that constantly beset him; to separate the truly useful from the merely ornamental; and to judiciously proportion his stock, so as to furnish every purchaser relying upon him a good selection of valuable fruits, *and that only.*

There are quack nurserymen as well as quack doctors, and it well behooves the planter to select his *nurseryman* as well as his *trees*, for it is not every one that assumes to know who really does know the varieties of fruit adapted to his soil and climate, and still a less number who know anything about *proportioning numbers* and *varieties*, in order to best serve the interests of his patrons.

It is especially annoying to one who has spent years in carefully testing the fruits of his country, to find an "empirical, oily tongued bigot," who knows nothing about his business, "palavering" among the people and wholesaling worthless stocks amongst them.

A man who has labored long and well in any laudable vocation, knows that reputation is a thing that can never be sustained but by constant and well directed effort, and sometimes not even then. And any man who has faithfully devoted himself to this business, richly deserves the patronage of his fellow-countrymen, and their patronage they owe to him as a duty; and they should cease to neglect the true friends of this important branch of husbandry, for the "mushroom" dealer who is "here to-day and gone to-morrow."

And this is not all. When it is a well known fact that a nurseryman has had years of experience in his business and has devoted himself assiduously to that business, making it his special study and undertaking, it is but fair to give him credit for the commonest kind of sense and to consider his advice concerning his particular calling, as worth hearing and following.

How common is it for orders to come from men who have no experience, to old and practical horticulturists, already made out in lists (without regard to quality) of many varieties of fruit, in the cultivation and fruiting of which there will be found neither profit nor pleasure.

It is time that those who desire to plant, should either inform themselves or confide in honest and reliable men who are informed, and the consequences would be that a better class of fruits would be disseminated throughout the country, and thus a greater degree of satisfaction and an increase of planting would result

We would say here for the benefit of all concerned, that the writer of this article has no nursery and is but a "lover of horticulture" and a friend to the true votary of a pleasing science and a useful and honorable occupation, the growing and disseminating of nature's very choicest productions.

I. T. W.

Hart County, Ky., July 16, 1870.

Phosphorus for Curculios.—At a recent meeting of the Cincinnati Horticultural Society, Mr. Welch stated that he placed a small quantity of phosphorus in the crotch of a plum tree. That season the tree was loaded with plums, while other trees had none. Whether it was the unpleasant odor which drove the curculios away or not, he did not pretend to say. Mr. Price said that the way Mr. Keller kept the curculio away from his trees was to place damp oat straw under the trees once a week, and burn the same. The curculios did not seem to like the smoke. Mrs. Bickham said that the plum trees near her house, around which the dish water and kitchen slops were thrown, were exempt from the curculio, while others, not so treated, bore no fruit.

The Scuppernong Grape.—A North Carolina correspondent says through the *American Agriculturist*, of the Scuppernong: "Indeed, I think with you that the Potomac river is the northern boundary of its successful, certainly its profitable culture. But here, in Eastern Carolina, the must of *ripe* grapes needs no sugar, to make a fine table or medicinal wine.

"I have had the fresh must of the Scuppernong, strained through linen, to register 96 degrees on Oechsle's scale, at 60 degrees (Fahr.) temperature.

Entomologist

The Currant-Worm.

We hear of the sudden appearance and depredations of this insect from various parts of the West. Unlike the Colorado potatoe bug, which moves in regular wave-like order Eastward, the currant-worm pops up, here and there, just as it happens. Its appearance in the West, so far as we know, is of recent date—two or three years. The Farmers' *Union*, Minneapolis, Minnesota, for July, in alluding to its first appearance in

that region says: "They are as numerous as the leaves upon the bushes, and in many instances the bushes are stripped as clean of their foliage as a well picked bone." We have similar reports from Michigan, Illinois, and from some parts of our own State—Iowa. Its first appearance in such numbers and simultaneously, and at points so remote from each other, is not easily accounted for. Our only solution of the question is that the insect has been brought here in eastern nursery stock from infected districts, as it is supposed to have been imported into New England from Europe many years since in that way. But *how* it got here is a matter of little importance now. It is sufficient to know that it *is* here, and, to understand that we must "*get shut of it*," or else forego the enjoyment of one of our most desirable fruits; and to combat it with success we should know something of its habits.

The perfect insect of the currant worm is a moth, or miller, from which two or three broods of worms are propagated in a single season. It undergoes transformation from the grub to the moth state in the ground. Instinctively, the first moths of the season emerge from the ground when the leaves of the bush are properly developed for their operations—usually about the middle of May. The female deposits her eggs on the under side of the leaves; in a few days they hatch and the larvæ commences feeding. When about three-fourths of an inch in length, the worm descends and burrows in the ground, where, after having undergone its transformation, which takes about three weeks, the perfect insect wings its way upward and deposits her eggs for a second brood of worms. Thus it is, that two or three successive colonies often appear the same season. The last brood of worms winter in the ground. The miller is of a pale ochre color, and the wings when fully expanded, about an inch from tip to tip. The full grown worm is of a yellowish green with rows of black spots along the back and sides.

Various remedies are in use for destroying this insect, among which White Hellebore seems to have proven the most efficacious. It is dusted on through a fine dredging box or cloth. It is said to be quite as effectual, if diluted with air-slacked lime. It may also be applied with a syringe in solution—a half pound of Helebore to twelve quarts of water. No doubt Paris green would do the work, used in the same way as recommended in the July No. for the potatoe bug. Air-slacked quick lime, finely powdered, has been used with perfect success, and in some cases wood ashes have answered the purpose. We should by all means recommend a trial of lime or ashes first, in preference to either Helebore or Paris green. Either should be dusted on all parts of the bushes and foliage early in the morning when wet with dew, and the application repeated alternately for six or eight days, should not a less number of dressings clean the worms out. Helebore and Paris green are rank poisons, and might poison the fruit as well as the worms. For this reason, we would recommend their use only as a last resort. We should not like to use the fruit from bushes in bearing to which either had been applied.

The Leaf Roller.

Several correspondents have mentioned the appearance of the Leaf-roller in such numbers as to excite apprehension concerning its future. We hear of its appearance in many localities where hitherto unknown. Three years ago it was first observed in our orchard. Our attention was first attracted to it early in the spring when looking after the egg clusters of the common Tent Caterpillar. Discovering an unusual number of wisps of dried leaves upon the small limbs and twigs, curiosity prompted us to pull off and dissect some of them. The result was the development of a small, brown worm about a half inch in length, snugly domiciled in a little sack, where-in the egg from which it grew had evidently been deposited the previous season.

Supposing this little fellow would naturally want something to eat by and by, after a long winter's nap, and to be in waiting for the green leaves to put out before emerging from his winter quarters, we at once concluded to head him off. This we did most effectually, by clearing the trees of every nest and burning them. Comparatively, that was the end of the leaf-roller upon our premises from that time up, for since, we have seen nothing of it of any account. But upon neighboring orchards, where it has been permitted to multiply unchecked, it has become a serious nuisance. An insect that may be nearly annihilated with so little trouble, should not be permitted to infest fruit trees for any length of time. It appears to prefer young orchards for its field of operation, for we find it mostly confined to young trees, though standing contiguous to larger and older ones.

Concerning the habits of the Leaf-roller the *Journal of Agriculture* says:—"This little worm, as soon as the leaves begin to appear, commences feeding. In about six weeks it attains its full size, nearly an inch long, and changes to the pupa state. In about ten days more it comes out a little moth. The female lays her eggs, which hatch in about two weeks more, and the worm attains about one-third its growth, and winters in the case where we find them."

Eor the Western Pomologist.

For what were Insects Made.

Insects were made for wise purposes, no doubt but these purposes—at least in many cases—seem "past finding out." Of what possible use is the musquito? says the sufferer from his tiny bite. No one can give a satisfactory answer to the question, and yet we have faith to believe that, as they were created by an All-wise being, they must answer some important ends in his great plans. At some future day some Franklin, Cuvier, or Linnæus will discover the importance of the musquito; and then the wonder will be that the people had not seen it before. A little weevil can do more harm to the farmer than the most unruly beast; the cut-worm can destroy more corn in one season, than will be pulled up by black birds in a number of years; and insects of various species do more injury in our gardens and orchards, than all the other animal creation not excepting theivish boys! It is clear, then, that their study becomes one of importance, and should therefore be encouraged by every agriculturist, gardener, Agricultural society, and even by the State.

I. A. L.

Transformation of Insects.—It is commonly and correctly stated that there are four stages in the life of every insect: 1st, the egg; 2nd, the larva; 3d, the pupa, and 4th, the perfect or imago state. In most insects the dividing line between these stages is well marked, the larva and imago being active locomotive creatures, capable both of eating and discharging fæces; and the pupa lying still all the time, and neither eating nor discharging fæces. But in certain great groups, for instance, the true bugs and the grasshoppers, the pupa is as active and locomotive and ravenous as either the larva or the imago, and sometimes cannot be readily distinguished by the inexperienced either from the former or the latter.

Am. Entomologist.

For the Western Pomologist.

Fungi and Fungus Foes.

Having paid some attention to the formidable host of fungus foes, known under the general names of smut, blast, mildew, rust, etc., of which Fires has found two thousand species, my attention was arrested in the remark made by W. H. White on the "Bladder Plum," on page 76 of the June number of the POMOLOGIST, stating, among other interesting facts, that "some of the plums would hang till the next spring before falling—*being dried to a black knot like.*" The black knot has long been known to be a fungoid disease. In order to illustrate what I design to explain, allow me to call your attention to the yellow jelly-like excrecence found on our common savin, especially after rains, which subsequently form into a hard knot, called cedar apples. A peculiar jelly-like substance, of a yellow color, on young pear trees, came under my notice, which subsequently hardened. In *Science Gossip* it is stated that M. Decaisne placed two plants of Savin affected with *Toidesoma Sabinæ*, (*Tremella Sabinæ* of some authors), one in the ground in the midst of four perfectly healthy young pear trees, and the other about six or eight feet from the ground, among the branches of a large, healthy "*Bon Cure*" pear tree. After a few days he found nearly all the leaves of the five trees affected with what is called the "*Ræstelia Cancellata.*" What can we infer from such a fact, as it no doubt is? Whence the change of character? Every tribe of plants possess peculiar and characteristic species on stem, leaf, or fruit. May we not infer that modifications take place by coming in contact with certain component parts of the plant. Mr. Berkeley, Dr. Hassall, and others, have written on this subject, in respect to the yeast plant, that a particular mould grew pretty uniformly on a solution of malt. A single yeast globule in a drop of water, surrounded by air enclosed in a glass cell, gave birth to a *Penicillium* and a *mucor*. They were also convinced that these were not the only moulds to which the yeast-globules gave rise. It is proved then, that yeast consists of a mixture of different moulds, in a peculiar condition, due to their development in a fluid, and that when a fit opportunity offers, these globules are capable of being developed into their ordinary form. But I will not follow up the yeast question. The rotting of fruits is ordinarily found due to the development of the microscopic fungi, *Mucor mucedo* and *Penicillum glaucum*, which latter is one of the commonest moulds, assuming a variety of forms, from its growing on all kinds of substances. It enters largely into the composition both of yeast and of the vinegar plant. I am encroaching upon a boundless field—one writer says, "As a particular vegetation is present in every form of fermentation, its germs, according to those who know everything, (he uses the word *panspermists*), must have floated loose in the atmosphere from creation up to the time when any new fermeated liquor was discovered. Did they rest so many ages unoccupied, awaiting the moment when Osiris invented beer? And even now does the atmosphere, loaded with these little seeds, drift them from pole to pole, till the Greenlander or Patagonian sets to work to brew a few quarts of this drink, or till it can fecundate the new ferments which each chemist may invent in the silence of his laboratory? If it really were so, we might groan over the fate of the atmosphere! Again, botanists are acquainted with a peculiar plant, the *Racodium cellare*, which has never been found except on the casks in our cellars. Where did the germs dwell before these were invented, during the long ages when our forefathers only employed amphoræ? (a Greek and Roman vessel for liquids, having two handles.)"

Berard, a physiologist of the faculty of medicine, even speaks of a plant which only lives on the drops of tallow which the miners in working let fall upon the soil.

Now, strange as these things may seem, they present a highly interesting field of inquiry. It is generally accorded that every sick or dying plant is certain to be attacked by its special parasite! There is no explaining the introduction of the seedlets of this fatal guest, and we may say there are as many varieties as there are plants.

Hence, the "Bladder Plum" is one form of a fungus and mode of development. But whence or how it originated, involves another question, which I shall not, with the rush-light of my limited knowledge, attempt to illuminate.

J. STAUFFER.

Lancaster, Pa.

For the Western Pomologist.

Is it the Canker-Work? Short Apple Crop.

A small, slender worm about an inch in length is troubling the apple orchards around here. Its locomotion differs from that of any other creeping thing. Its steps are measured by the length of its body.

About the 10th of May, the trees were swarming with a light colored moth or miller, and early in June the worms I speak of appeared in countless numbers. Give the tree a jar, the worms drop down free from the limbs and then hang suspended for a time by their silken thread. They took the leaves off clean, giving them the appearance of being dead or singed. What are they? Are they the Canker-worm so destructive in some parts of the county? Are they likely to appear again next season, and how can we protect our trees against them?

The apple crop is very light in this part of Wisconsin. Many ascribe it to the "cold snap" in April. I think we may go farther back for the true cause. We hear of great loss of young trees, which is ascribed more to the freeze of October last than to the winter. The summer previous, cold and wet, was unfavorable to a healthy growth of wood. Under such conditions of wood growth, could we reasonably expect the production of well matured fruit buds? I think not.

CHARLES WATERS.

Springville, Wis.

REMARKS.—Yes, you have the Canker-worm sure, and you may look with certainty for its re-appearance next season unless you adopt some method to head it off. That may be done very successfully if taken in time. In due time for action next spring, we will give a chapter on the subject. We do not dread the Canker-worm so much as the Core-worm. The habits of the former are so well understood now that no orchardist need suffer from its depredations. But how to save our fruit from the Core-worm is not so clear. More light is wanted.

Pruning the Currant—The Borer.

There is no shrub, bush, plant or tree that pays more generously for pruning than does the currant. Yet few ever touch it with the pruning knife, while they use it to excess on the grape, apple and pear. To have large, well developed fruit and paying crops, a rich, moist, cool, friable soil, made so by feeding and mulching, and a judicious system of pruning is all important. For mulch there is no substance so valuable as chip manure, or leaf loam, etc., from the forest. The borer is becoming a serious draw-back upon the growing of the currant. As a remedy we know of nothing so effectual as close pruning and burning the trimmings. Gardeners are often perplexed at the sickly appearance and decay of the two and three year old growths of their bushes. It is a very easy matter to trace out the cause. Examine the pith of the old wood and you will find a little white bodied and copper headed worm making his way up towards the top. We apprehend more trouble from this enemy of the currant than from the worm that infests its foliage.

Transplanting Pie Plant.

We would add a few remarks to what was said in a previous number in answer to Mr. John Stier. We have cultivated pie plant extensively for market, and find the best time to transplant is in the *fall* after the first frost. If the stools are large and require a division do not *dig them up* but divide them as they stand with a spade by cutting off or dividing through the center of the plant, leaving the part in the ground undisturbed. By this method you will have a good crop the next spring on those left in the ground, and the balance you can divide up and reset and they will bear a good crop the second year but not the first. We have plants now standing ten years divided in the above manner (when they get too large) and each year produce a good crop. The ground cannot be too rich, but must not be wet or the plants die out. The Myatt's Linnæus and Grey Eagle are the best for market and the stems need no peeling. The Victoria is too late, coarse and acid.

J. S., ASST. ED.

THE POMOLOGIST.

THE TETOFSKY.—We are pleased to acknowledge specimens of this apple from Mr. J. Gould, Beaver Dam, Wis., received July 19th, in maturity not quite ready for eating from the hand, but in excellent condition for cooking. Mr. G. says they are rather small on account of drouth.

CORRESPONDENTS.—We most heartily appreciate the assistance of our able corps of correspondents in the management of the *Pomologist*. We cordially invite new recruits to the ranks. Give us plain, practical articles, however homely they may be in composition. Nor would we forget to thank our brethren of the Press, for their flattering reception of the *Pomologist*, and valuable aid rendered by way of introducing it to the public.

ADVERTISEMENTS.— Several favors in this line came to hand after the first side of our paper went to press, and as the cover had been previously worked off, they are reluctantly laid over till September. Our purpose is to have the paper in the hands of its readers in good time—by the first day of the month; and to enable us to do so it must be ready for the mail four or five days previous. Let us have the advertisements by the 15th or 16th of the month preceding publication. To nurserymen, seeds men and dealers in agricultural or horticultural implements, the *Pomologist* presents special inducements. Its readers are of the progressive sort, the very ones who patronize the seedsman, the mechanic and the nurseryman.

BEE DEPARTMENT.—We have concluded to discontinue the Bee Department of the POMOLOGIST confining the paper henceforth strictly to pomological matter. There are several journals in the country especially devoted to that branch of industry. Should any of our readers wish to take a strictly bee journal, we commend to them the *Apiculturist*, W. G. Church, editor, Mexico, Mo.; monthly; $1 per year.

PLEASING RECEPTION.—The San Francisco *Bulletin* of June 21st, thus announces the arrival of the company of Eastern pomologists who passed west in June: "President Wilder, a distinguished horticulturist of Massachusetts, arrived in this city last evening with his friends and co-laborers in horticulture and agriculture, Messrs. Downing, Barry, Ellwanger, and Clark, with their wives. They were met on the Summit by a delegation from this city and vicinity—Prof. Carr of the University, and wife; A. S. Hallidie, President Mechanics Institute; S. W. Shaw, the editor of the Farmer, and others. They met their eastern friends yesterday morning at sun-rise, and extended to them a hearty welcome up there among the snow-clad mountains. The parties then proceeded on their way to the valleys of California and this city."

FRUIT IN GENERAL.—The Report for July, from the Department of Agriculture, represents the prospects of the apple crop unusually good. Peaches ditto, except in Illinois and Michigan, where the prospect is five to ten per cent below the average. Grapes promise an abundant yield throughout the country.

☞ Peaches promise an average yield in Delaware. The wet weather has injured the small fraits, but crops generally look fine.

☞ The Colorado potatoe bug is worse than ever in Minnesota.

☞ The cherry crop is said to have been a failure in the Middle States.

☞ The Chintz bugs have made their appearance in Adam's county, Wis. Woe to the wheat in "them diggins."

☞ The fruit crop all over the States of Connecticut and New Hampshire are reported as never more promising.

☞ Fairmount Park, Philadelphia, including the new district, has 2,706 acres, and is the largest public park in America.

☞ Upwards of 1,200 pounds of Paris green have been sold at La Crosse this season for the destruction of potato bugs.

☞ The Boston Cultivator of July 9th, says lemons and oranges are now at about three times the prices, that ruled during the past three months.

☞ We are told that California beets are so large that pigs eat tunnels through them without disturbing the outside. That's nothing for California to do.

LIBERAL PREMIUMS.—The Indianapolis Horticultural Association offer the following very liberal premiums, to be awarded at the next fair of the Association, Sept. 3d:

☞ Hussman says "the grape is the most reliable of all fruits, for the reason that the secondary buds will produce half a crop, if the primary ones have been killed by frost.

TREES DYING.—A Beloit correspondent of the *Western Farmer* writes (June 27,) that fruit trees set for two or three year and not mulched, are dying from the effects of the drouth.

☞ The Elyria (Ohio) *Democrat* says: "Heman Moon, of Avon, Lorain county, picked one of Wilson's Albany strawberries, which measured just six inches in circumference."

☞ Fruit growers in Michigan are rejoicing in a new style of fruit cars for taking their fruit to Chicago. They are provided with shelves and a very thorough system of ventilation.

THE TARANTULA.—The *Cincinnati Times* says a veritable Texas Tarantula was recently captured near a fruit stand in that city. It is supposed to have found ite way there concealed in some kind of tropical fruit.

☞ There is a curious Chinese proverb which says: "In a cucumber field do not stop to tie your shoe; and under a plum tree do not wait to settle your cap on your head;" which means, if you do, some one may think you are stealing the cucumbers or plums.

☞ A farmer in Wisconsin fed pie-plant leaves to eight two-months-old pigs, one evening, and found six of them dead the next morning, the other two being nearly dead.

☞ Selling pollen for fertilizing purposes, at so much per packet by mail, is the latest horticultural idea in England.

Best collection of fruits of all kinds, silver medal and $75. Best collection of apples, $50. Best collection pears, diploma and $30. Best collection of conservatory or green house plants, amateurs' list, $25, followed by premiums of $10 each on boquets and baskets of flowers.

FALL OF APPLES.—The Maine *Farmer* of July 9th, says, from several portions of the State we learn that fruit, especially apples, is falling from the trees in large numbers This is, without doubt, caused by the hot, dry weather, which has continued for some time with much severity.

STRAWBERRIES IN KENTUCKY.—Mr. A. D. Webb, of Bowling Green, Ky., says in the *Western Ruralist*, the varieties most popular with us this season were Chas. Downing, Kentucky, Green Prolific, French's Seedling, Filmore and Russell, in the order named, all very large and fine. Since the introduction of the three first named varieties, the old and much esteemed Wilson has been consigned to a back seat by some of our cultivators, yet it is perhaps a better shipping quality than either of the others, but cannot compete with them in uniform size and appearance.

Agricultural Fairs for 1870.

STATE FAIRS.

Illinois,	Decatur,	Sept. 26 to Oct. 1
Michigan,	Jackson,	Sept. 20-23
Indiana,	Indianapolis,	Oct. 3-8
Iowa,	Keokuk,	Sept. 12-16
Wisconsin,	Milwaukee,	Sept. 27-30
Mo. (St. Louis Ass.)	St. Louis,	Oct. 3-7
Minnesota,	Wenono,	Sept. 20-23
Ohio,	Springfield,	Sept. 12-16
Nebraska,	Brownsville,	Sept. 20-23
Kansas,	Fort Scott,	Sept. 27-30
Kentucky,	Henderson,	Oct. 4-9
New York.	Utica,	Sept. 27-30
Pennsylvania,	Scranton,	Sept. 27-30
Georgia,	Atlanta,	Oct. 19-26
Vermont,	Burlington,	Sept. 6-
Arkansas,	Little Rock,	Oct. 11-14
North Carolina,	Raleigh,	Oct. 18-21

DISTRICT AND OTHER FAIRS.

Central Michigan,	Lansing,	Sept. 14-16
Northern Ohio,	Cleveland,	Oct. 4-7
Am. Institute,	N. Y. City,	Sept. 7 to Oct. 6
New England,	Machester, N. H.,	Sept. 6-10
Agr. Mec. and Hort.	Indianapolis,	Sept. 5-9
Nor. Wisconsin,	Oshkosh,	Oct. 3-7

IOWA AGRICULTURAL FAIRS.

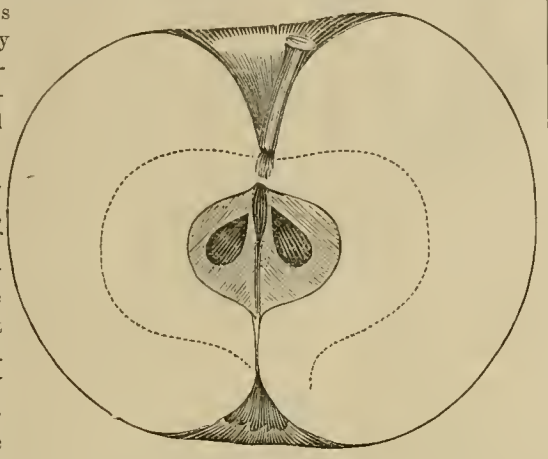
Clinton,	Clinton,	Aug. 30, 31, Sept. 1, 2.
Henry,	Mt. Pleasant,	Sept 7, 8, 9.
Benton,	Vinton,	Sept. 13, 14, 15, 16.
Mills,	Glenwood,	Sept. 15, 16, 17.
Allamakee,	Waukon,	Sept. 20, 21, 22.
Bremer,	Waverly,	Sept. 20, 21, 22.
Mahaska,	Oskaloosa,	Sept. 20, 21, 22, 23.
Wapello,	Ottumwa,	Sept. 20, 21, 22.
Floyd,	Charles City,	Sept. 20, 21, 22.
Van Buren,	Keosauqua,	Sept. 21, 22, 23.
Decatur,	Leon,	Sept. 21, 22, 23.
Louisa,	Wapello,	Sept. 27, 28, 29.
Davis,	Bloomfield,	Sept. 28, 29, 30.
Delaware,	Manchester,	Sept. 28, 29, 30.
Des Moines,	Burlington,	Sept, 6. 7, 8, 9.
Scott,	Davenport,	Sept. 6, 7, 8, 9.
Clayton,	Farmersburg,	Sept. 27, 28, 29.
Chickasaw,	New Hampton,	Time not stated.
Blackhawk,	Waterloo,	Sept. 21, 22, 23, 24.
Crawford,	Dennison,	Oct. 7, 8.
Cedar,	Tipton,	Oct. 26, '7, '8, '9, 30.
Benton,	Belle Plaine,	Sept. 6, 7, 8, 9.
Appanoose,	Centerville,	Sept. 27, 28, 29.
Lee,	Fort Madison,	Oct. 4, 5, 6.
Story,	Nevada,	Sept. 13, 14, 15.
Washingt'n,	Washington,	Oct. 4, 5, 6.
Jasper,	Newton,	Sept. 21, 22, 23.
Warren,	Indianola,	Sept. 21, 22, 28.
Cass,	Atlantic,	Sept. 28, 29.
Jefferson,	Fairfield,	Oct. 4, 5, 6.
Fremont,	Sidney,	Time not fixed.
Guthrie,	Guthrie Center,	Time not fixed,
Humboldt.	Dakota,	Oct. 5, 6.

District Fairs appointed are:—

Central Iowa, Des Moines,	Sept. 28, 29, 30.
Union, Ackley, Hardin Co.,	Sept 20, 21, 22, 23.
Cedar Valley, Cedar Falls,	Sept. 27, 28, 29.

The Tetofsky, from J. Gould, Beaver Dam, Wis.

The Tetofsky, as the Dutchess of Oldenburg, is of Russian origin, and is claimed to be a still hardier tree and earlier bearer. In fact, it is said to be no less hardy than most of the crab apple family, while in size, it is much larger, and for most cullinary purposes and the desert much superior. It is a very early apple—ripening some days earlier than the Red Atsrachan.



The specimen from which the accompanying illustration is copied, was recieved from Mr. J. Gould, of Beaver Dam, July 19th, with the remark that it was picked before ripe and not so large as usual on account of the drouth. Of the specimens received one was quite conical—very unlike in form to the one illustrated.

Tree stout, hardy and productive and comes into bearing very young. Fruit variable in form—roundish flattened, angular and conical as shown in the specimens from Mr. G. Color light, slightly splashed with red and tinged with a white bloom; stem short, stout; basin shallow, in some specimens irregular, ribbed, in others slightly so; core, medium; seeds medium, plump; flesh, yellowish-white, tender, slightly acid; season, July. Elliott says "the tree is a gross feeder, requiring good soil, and needs but little pruning." Our illustration is copied from one of two specimens by Mr. G.

ENGRAVING FROM MR. MANNING.

The form and size of the Tetofsky seem to differ very much if we are to take the different illustrations as true types of the fruit. "In the Report of the Commissioner of Agriculture for 1866, an illustration appears that bears little or no resemblance to the specimens of fruit from Mr. G. Basin very deep and irregular. We also in this connection present a cut sent us by Mr. J. M. Manning, nurseryman, Reading Mass., who has been propagating the apple for some years past, still different in both size and form.

ASPARAGUS IN JULY.—A correspondent of the *Country Gentleman* says asparagus may be transplanted in July no less successfully than in the spring, by cutting off the top and shortening in the roots to four inches.

For the Western Pomologist.

The Mala Aphis—Hens and Insects.

FRIEND MILLER:—The past month has been dry and hot—not rain sufficient to settle the dust that had accumulated in the roads.

This so immediately following the heavy and almost incessant Spring rains, made the drought more disastrous. The ground in the Spring was broken up when very wet, and in a short time was as compact as if it had not been ploughed. All vegetable growth that requires loose, moist soil has suffered severely. The garden has been neglected—the fields demanding more than usual attention. Strawberries were scarce and of inferior quality—about ten days in advance of the usual season. Blackberries and Raspberries gave, in May, signs of a bounteous crop. Raspberry season is past and no berries canned for future use. Blackberries are now dry on the canes; recent rains may partially revive them, though their juicy sprightliness can never return. Hence our farmers will have to pass over the winter and spring without these luxuries. I penned the word "luxury" carefully—to the prudent farmer fruits have almost become things of necessity—the healthy substitute for beef and pork.

Trees transplanted this spring have struggled against the combined attacks of drouth, insects and carelessness, the last being the most noxious foe of man and vegetables.

A few moments spent at the proper time, in mulching, many trees and many dollars would have been saved to the owner. The "leaf roller" was very troublesome in many orchards in this vicinity. Also the *Mala Aphis* troubled the young shoots of the apple trees, whilst another variety of aphides infest and are doing serious work for cherry trees and weeds.

It is held by entomologists that insects of the same species will not work on vegetable growth of different genera. But here I find a species of aphides at work on the tender cherry shoots, and voraciously feeding on the great (*Ambrosia trifida*) and small (*A. Artimissia folia*) rag weeds. Unquestionably these are not of the same genus of plants.

The *Doryphora decem lineata* has visited us to a limited extent. About the first of May I found them on my Mercer potatoes. Not having the time to destroy the eggs and larvæ as fast as they would appear, I resorted to an experiment with good results, at least I found it a labor-saving expedient in a distasteful line of business.

Temporary coops were arranged at suitable distances over the potato plat and hens with their broods were domiciled. The brood had free range—the hens confined until they were weaned from their former roosts. It was amusing to witness the scrutinizing maneuvers of the bugologists. Young, but adepts instinctively in this line of business. At the present time I can not find an egg of the insect. The nauseating larvæ to human eyes, was appetizing to a hen that had fasted over the period of incubation. I do not recommend this as a sovereign remedy for all the ills that bugs may inflict—but am satisfied to know that it saved the plants and concealed from view several sickening "smashes." OBSERVER.

Urbana City, Appanoose Co., Iowa.

P. S. Corn looks fine—oats and wheat good—straw short. With the exception of fruit, we have the most favorable prospect we have had for several years.

FRUIT IN TAMA COUNTY.—Mr. D. F. Bruner of Toledo, writes July 11th.—"Fruit prospects in Tama county poor indeed. Apples and pears very few—cherries scarcely none—strawberries medium crop—plums tolerably plenty. Blackberries and raspberries are cut short by the drouth. Though no rain of any account since April, my nursery trees are making a good healthy growth. Cuttings and tree seeds have failed to come to a considerable extent on account of the drouth.

Standard pears, especially the Flemish Beauty, are doing well with me. Dwarfs worthless here unless the quince root is well protected by a mound of earth to protect them in winter.

MARSHALL NIEL ROSE.—The *Canada Farmer* declares this beautiful rose one of the hardiest in cultivation. It has been exposed to a temperature of 18 degrees below zero, without injury. In New Jersey it has passed safely through winter unprotected, We should not like to risk it here.

THE GUM-BERRY STOCK.—Mr. Huidekoper says, in the *Horticulturist*, that pears grafted on this stock (the *Amelanchier Botryapium*, also called in markets the Indian cherry) are free from the "blight."

For the Western Pomologist.

The Coming and Going of Insects--The "Germ Theory."

Several years ago the Measure-worm was the greatest enemy to fruit and other trees in this neighborhood, and so destructive were they as to divest many of their entire foliage. Now, however, and for some years past, they have been comparatively scarce, and many trees, which for years maintained a doubtful conflict with the depredators, exhibit signs of restored health and fruitfulness.

It seems to me an interesting question for fruit-growers and others of an inquisitive turn of mind, to investigate what we will here call the laws of the coming and going of such visitants. How they make their appearance, increase and multiply for a series of years, and then so suddenly disappear, seems to be involved in much mystery. But those who, like a writer in the *New York Commercial* the other day,credit the riddance of the worms to the birds, labor under a great mistake. It is true the sparrow is a pugnacious little fellow, and can destroy as many insects per day as any feathered companion of his weight, but he destroys no more than what satisfies the calls of hunger, which can only be an unappreciable number, reckoning the aggregate of geometers which were wont to infest the trees in Brooklyn and New York. During the years 1864, '65 and '66, no where did those insects prevail to a greater extent than in New Haven; but since then they have so far decreased as to do little harm. This reduction cannot be attributed to the birds however, much less to the European sparrow, for there are not a hundred of them to-day within the limits of the city. And to regard these as capable of keeping such a formidable enemy in check, would be quite as reasonable as to suppose a dozen policemen could surround and capture all the rogues in the United States.

Such facts are suggestive and seem to indicate that many of the diseases to which plants as well as animals are subject,—such as blights and murrain, are brought about in a similar way though the agents employed are not recognizable by the senses. Of course, this brings us to a point from whence the "Germ Theory" can very visibly be seen—a theory I have held for more than twenty years, though in the crudest possible form. But perhaps the time is not remote when the isolated facts which have a bearing upon the subject, coupled with others now "floating about the threshold of an age" of greater enlightment will be gathered up and formulated, so that ordinary men may understand with greater clearness some phenomena which hitherto have been shrouded in mystery.

I am the more encourged so to hope since the publication of Prof. Tyndall's lecture on "Dust and Disease," as facts are therein stated which were only conjectures a short time ago. Then too, men of culture—brave men—are laboring hard to reach solid grounds of belief, as to the cause of such diseases as cholera, small pox, rinderpest. And this field of inquiry has not been barren of results since "Haller has succeeded by means of a peculiar propagating apparatus in developing from the Micrococcus found in choleraic evacuations the higher fungus forms from which it is derived. The parent stock of the Choleraic Micrococcus is the rice blight fungus, Urocystis oryzae which is totally unknown in Europe, and is peculiar to the rice fields of India, whence the Micrococcus has spread itself all over the globe. It reaches the ground by means of choleraic evacuations and there,especially in dung-heaps it continues to increase." It is now generally conceded the potatoe disease originated somewhat in the same way—in short, was the work of a fungus in the micrococcus state, the first in development, in which and the next higher, Cryptococcus, the yeast fungus does its work for the baker and the good housewife—"A little leaven leaveneth the whole lump."

I was going on to say, or rather ask, might it not be that the "unknown cause" which has proved so destructive to evergreens in the west is referable to the same class of agents? It may be worth while for scientists to look at the question in this aspect, and should they get their labor for their pains, they will fare no worse than the writer has often done when bewildered and perplexed with the mysteries of nature. In such moments there is a strange fascination and pleasure in conning over Carlyle's sobering sentence: "The course of nature's phases, on this our little fraction of a planet, is partially known to us; but who knows what deeper courses these depend on; what infinitely larger cycle (of causes) our little Epicycle revolves on? To the minnow every cranny and pebble, and quality and accident, of its little native creek may have become familiar; but does the minnow understand the ocean tides and periodic currents; by all which the condition of its little creek is regulated, and may from time to time (unmiraculously enough), be quite overset and reversed? Such a minnow is man; his creek, this Planet Earth; his ocean the immeasurable All; his moonsoons and periodic currents the mysterious course of Providenc, the Æons of Æons."

A. Veitch.

New Haven, Conn.

For the Western Pomologist.

Profitable Fruit Culture.

The subject of profitable fruit culture is one of peculiar interest now to people of all sections. To those engaged in agricultural pursuits more especially, since grain raising has become very unprofitable and the cost of transportation so enormous; to the denizens of large cities and districts of country unadapted to fruit-growing, important in an economical sense, as fruit has and is becoming an excellent and indispensable substitute for meat, latterly grown to be too expensive in all markets. This is felt to be a great fact realized by the journalists of America, and daily is it heralded to men, who may improve the suggestion, if timely heeded. It is now believed that in cities where ripe fruit can be purchased at fair prices in necessary quantities, the general health of the people is improved, and those terribly afflicting epidemics scattered and overcome.

To avail one's self of facilities desirable in the successful culture of fruits and vegetables for the best markets, it is essential to locate on railroad lines penetrating such, and on lands adaptable thereto as to soil and climate. There is also, of course, another consideration involved in reference to the profit, and that is the cost of sure and expeditious transportation for such perishable but valuable products.

All must readily admit that in the far south under the burning suns of early summer, the more juicy and tender small fruits can never be advantageously cultivated, as the yield must thereby be abbreviated as well as the chances of reaching the more northern markets in good condition, reduced; and as good condition alone ensures a paying sale, it must be set down as one of the first items to be considered and satisfactorily settled by one choosing the occupation over that of grain or stock raising.

I propose in some future number of your Pomologist to give your readers some results of experiments and facts made and gathered from a period of life embracing thirty years in active contact with the culture and handling of fruit, in the vicinity of Dover, Del. Twelve years of this experience antedates the completion of railroads now parceling out the entire region of our peninsula, and of course stretches over a period when the introduction of fruits of indigenous growth was discouraged by the impoverishingly low rates meted out to the growers. A taste and demand have at length been created for perishable fruits in our larger, northern cities. and facilities for transportation commensurate with the trade afforded until now, Delaware for profits challenges the sterile mineral regions of any State, and is fast assuming an agricultural importance and beauty surpassed by none. Men who have traveled thousands of miles over American forests, fields and prairies admit, that nowhere have their eyes been greeted by more inviting rural scenery or compensating soils. And those seeking a change of home for health, or advantageous circumstances in the line indicated, if neglecting to visit the three counties on the Delaware, may never know the loss they have sustained until it be too late to be remedied.

Elias S. Reed.

Dover, Delaware.

For the Western Pomologist.

Seedling Apples.

FRIEND MILLER:—I was a little surprised to find in the July No. of the POMOLOGIST so severe a rebuke for my cautioning people against depending on seedlings for valuable varieties of apples.

I find Dr. Stayman charges me with quoting falsely from the February number of the POMOLOGIST in these words:

"For Dr. Stayman said: 'It being a seedling of the Ben Davis is sufficient guaranty,' etc. And then he says, "the above we have never said, nor even so intimated.'"

Now let me quote again from the February number: "The tree is so identical in all its habits with the Ben Davis, which is a sufficient guaranty of being hardy, productive, and profitable, without further comment from me."

I can find no name to father this sentence, in the February number, but as Dr. Stayman announces himself as Assistant Editor, and he living in Kansas, is it not reasonable for me to suppose that he was author of the article on the Kansas Queen?

Will Dr. Stayman, now since he has made so much fuss about it, please tell us who the author was?

But what difference does it make who the author was; *it was the subject*, and not the author, that I was upon. The question for Dr. Stayman to discuss would more properly have been, "*Seedling Apples*," not Stayman *vs.* Foster.

Now let me stir up Dr. Stayman again for what he says in the July number about *Seedlings*. He says:-

"In connection with this subject we would say that healthy and hardy offspring must have healthy and hardy parentage; but it does not necessarily follow that they are *all healthy and hardy*, but it follows as a law of nature that no offspring can be more hardy and healthy than the parents."

I wish to take the liberty to say that I very much doubt this principle. It is my opinion that the Creator has fixed bounds and limits to the advance of vegetable and animal life, but to say that we have now attained to the height and limit of these improvements is not correct; for it must follow that if "no offspring can be more hardy and healthy than its parents," then that limit is already reached in the parents. And while I would discourage the idea and general practice of depending on seedlings to produce the like of the parent tree, yet I would like to have our experimental farm, at the Agricultural College, try, intelligently and scientifically, to improve on our varieties of apples. While the pear and the grape, and many other fruits and flowers have been improved by hybridizing, with a design of improving, I know of no such effort ever having been made with the apple, the best and most valuable of all our fruits. We very much want a first quality apple that will keep until early apples come again.

SUEL FOSTER.

The Howell Pear.

This pear was originated by Thomas Howell, of New Haven, Conn., in 1829. The tree is an upright and free grower, an early and profuse bearer on the pear stock, and among the best worked on the quince. Skin, light waxen yellow, often with a finely shaded cheek, thickly sprinkled with minute russet dots and some russet patches. Flesh, white, fine grained, juicy, melting, sweet and pleasantly perfumed. Season September.

No pear orchard is complete without the Howell. J. J. Thomas, one of the solid pomological men of the day, classes the Howell among the most desirable, as will be seen from the following remarks by him on early bearing pear trees. We copy from the *Country Gentleman*, of which Mr. Thomas is the Horticultural Editor:

"A young cultivator, who has been unsuccessful with dwarfs, wishes to know if he cannot make a selection of early bearing standards, so as to secure nearly as quick returns as from dwarfs. We answer, much may be done in this way to secure the desired result, by planting those varieties which have uniformly proved early bearers. In the order of ripening, the Summer Doyenne must undoubtedly be placed first. Unless the tree is in a very rapidly growing condition, it begins to bear when quite young, and gives profuse crops afterwards. The Bartlett is of course the heaviest bearer of all sorts, both when quite young and after the tree attains full size. After the Bartlett add the Washington, Seckel, Howell, Belle Lucrative, Onondaga, Winter Nelis, and Passe Colmar. The Gifford may be added—and if grafted standard height on some straight and vigorous grower, its feeble and crooked growth may be obviated, and handsome and symmetrical trees produced. There are several other sorts, which, although often giving good crops from young trees, are not so uniformly productive at an early age, such as Bloodgood, Dearborn's Seedling, Rostiezer, Flemish Beauty, Lawrence, Alencon, Columbia, etc. On the other hand, by planting such excellent sorts exclusively as the Tyson, Dix, Sheldon, etc., famous as tardy bearers, the young owner may become discouraged before he enjoys the result of his labors.

ALPINE STRAWBERRY.—Fuller says it appears to be a well established fact that all the natural varieties of the Alpine strawberries reproduce themselves from seed, without variation.

For the Western Pomologist.

Fruit in Minnesota.

Ed. Pomologist:—Perhaps some of your readers may like to learn what varieties of the apple promise best in Minnesota. I will give you an account of last winter's experience with me - a winter the most trying on fruit frees that I have ever seen in the State, though the average of the weather was mild. The October freeze did the damage while the sap was in full flow—tops killing some, and bursting others at the collar. The more thrifty the tree, the greater the damage. That some trees should pass through the frosty ordeal unscathed, while others standing right along side were entirely destroyed was singular. With me the damage was confined to young trees—one, two and three year olds.

Those least affected were Dutchess of Oldenburg, Fameuse, Tetofsky, and the St. Lawrence. These were less injured than the Transcendent and Hyslop crabs. The Haas, Ben Davis and Plum's Cider suffered more than the Transcendent. Still, some trees of each came out as well as the best—those trees standing on the most bleak exposure being injured the least of all. I have never had the Sops of Wine on my own grounds until last spring. But in my neighbor's orchards it stood so well that I deem it one of the very best both in point of hardiness and fruit. To say what has failed with me would fill a column, and perhaps not one in ten true to name. Such a list would do more harm than good as no doubt some of them will succeed with others on different soil, and even with me under a different mode of treatment. So I will not condemn those sorts I cannot at present consistently recommend.

Of apples and cherries we have good crops this season, taking into account age of trees. The cherries come through the fall and winter apparently unharmed, but a late spring frost thinned out the fruit. No pears in fruit yet, but the prospects are good for fruit sometime. The early freeze last fall found the grape vines unprepared for it. The consequence is a short crop this fall.

Peter M. Gideon.

Excellsior, Minn.

For the Western Pomologist.

Hardy Offspring—Fruit In Iowa County.

Friend Miller:—I am in receipt of the July number of the Pomologist, and beg leave to say a word on the Assistant Editor's remarks on seedling apples; he says: "It is a law of nature that no offspring can be more hardy and healthy than the parents." It may be that seed from tender varieties of the apple will produce a proportionally greater number of tender trees than seed from more hardy trees. But I believe the former will produce offspring to some extent, *more* hardy than the parent, and I will give a bit of my own experience in support of my position. I have of my own raising some seedling grapes grown from seed of the Delaware, that are no less hardy than the wild grape indigenous to this part of the country, and yet the Delaware is not perfectly hardy.

Our fruit prospects are not very flattering this season. I think the October freeze did the injury. But very few apples, pears or cherries. The N. Y. Pippin, (Ben Davis) was the least affected for it is bearing more fruit than any other tree. In the line of plums the Lombard is heavily laden with fruit. Strawberries badly winter killed. The currant borer seems bent on taking all our currant bushes. Raspberries, a good crop, and I place the Philadelphia at the head of the list, ripening as it does after other sorts are mostly gone, giving immense crops of large, berries and being more hardy than any other sort. The only objections I have to the Philadelphia is, that it sprouts up from the roots. But even with that objection I consider it indispensable. It is among raspberries what the Concord is among grapes—*the* berry for the million. I am growing it in hedge fashion—keeping the plants in rows.

But we can raise grapes if it does get almost dry enough to call it drouth. My vines are full of large clusters. The October freeze did much damage in the nursery, and what is very strange, the most hardy sorts of trees were damaged the most.

The extent of the damage was not apparent until the trees began to leave out. Many kinds do not make the growth that they should this summer.

F. O. Harrington.

Iowa County, Iowa.

The Miner Plum—Its History.

Ed. Western Pomologist.—Some few months ago I addressed a letter of inquiry to Mr. J. C. Cover, Lancaster, Wisconsin, concerning what he knew about the history and merits of the Miner plum. As this plum is exciting more attention at present than almost any other variety, what is said of it may be of interest to the readers of the *Pomologist*, and of no little importance to those who may wish to purchase trees. Mr. C. says:

"In the year 1847, one J, P. Miner moved to this vicinity from the Apple River country in Illinois, and brought with him about twenty small shoots from the parent tree, which he said would soon bear the finest and best plums ever seen. These he distributed among his newly formed friends; myself being favored with two of them. He had no name for them; and this is all we know of their origin. In a few years the fruit of these trees became noted in town for their excellency of flavor, and especially for their usefulness for canning and winter use, esteemed as the equal of peaches. Since then, although the trees are abundant on the farms and most every village lot, the supply of fruit has not been equal to the demand for family use; the price usually $2.00 per bushel.

As to the question, is this plum of native, wild, or cultivated origin, I am unable to decide, and do not know that it makes any difference as to its value. Mr. Miner had no name for it, and so it came to be known as the "Miner," from the name of him who first introduced it hereabouts. Am told that about Apple River it bears various names, and some persist in classing it with the Chickasaw kind, and at Galena it has lately been christened "Townsend." It is unlike any Chickasaw I have ever met with.

The tree is a remarkable grower, and the age and size to which it may arrive are unknown. In this county the oldest trees are above a foot in diameter, with tops spreading thirty to forty feet. The trees, therefore, require much room, and should be set at least fifty feet apart to do well. Mine were unfortunately set some twelve, some twenty feet apart, and I have had to cut away alternates to cause them to fruit well.

As to the propagating, grafting upon wild or other plum stalks of course must prove a failure, as the "Miner" makes at least three times the wood of any known tree of the plum kind. In these parts all methods of artificial propagation have been tried and failed. The large trees, ten years old and upwards, however, furnish abundant shoots which may supply the demand, and in this vicinity all the trees sent abroad are such shoots.

Some years ago the seed were planted in view of supplying the demand, but these were soon found to produce an inferior fruit—though not till after thousands such were set out, and from these sprang tens of thousands hawked through the country by distant tree peddlers. The agents of nurseries often go about hunting up stock and are usually supplied with these seedlings, which I presume are being sold for true "Miners."

If it is true, as Mr. C. says, that spurious trees have been sent out to people, it is high time the imposition be ventilated. I should like to hear through the Pomologist from some of those who are propagating the Miner, how they propagate it, the kind of stocks used, etc. C. W.

Springville, Wis.

Grape Rot.—The Alton, Illinois, Horticultural Society have been discussing this subject. Chas. V. Riley, State Entomologist of Missouri, thinks the rot in the berry may be attributed to some constitutional defect in the vine. Mr. Starr, of Alton, does not believe it due to any constitutional defect in the vine, nor to the mode of preparing the soil, as some believe. J. M. Jordan, of St. Louis, a successful cultivator said:—"I have lost all confidence in the statements of our scientific men. I have seen grapes grow where our scientific men say they can't be grown. I do not disapprove of scientific investigation, but I do disapprove of stating as facts what are merely suppositions. I have grapes growing this year where you could not pick a handful of rotten grapes. I believe I can take any vine and make it produce sound fruit, free from rot. Close pinching is the main thing. Keep the foliage in check. The soil should be well underdrained as I don't think one can grow fruit or vegetables with the feet of the plants in water. The rot last year was extensive, but on underdrained soil, where a careful system of close pinching has been followed, we find the grape nearly exempt, as compared with those vineyards where a different system has been followed.'

For the Western Pomologist.

Apple and Pear Prospects on the Illinois Bluffs—The Aphis Male.

Our prospect for a good crop of pears in early spring was very flattering, but now it is poor indeed. The trees blossomed full, old and young. The little lined plant bug (*Phytocoris lineolaris*) of Harris, puctured with its poisonous beak nearly every blossom, every one with me except in the top of the trees six to fifteen feet from the ground. It also seriously injured the apple, Missouri Ash, and strawberry. Every shoot or blossom pierced by the beak of this insect dies, and growth has to push anew. Young pear and Missouri ash trees in the nursery rows, looked like they had been singed with fire. It belongs to the Chinch bug family and has been increasing here at a fearful rate for the last five or six years. We are not frightened. Such things come and go in nature's own good way and time. So we will have but few pears here, for all our glorious prospect, blossoms plenty and trees in splendid condition.

Apples blossomed as full as I ever saw them, and there was no frosts to injure the bloom, and all trees that were not greatly weakened by the much too liberal supply of water last year, set a full crop of fruit that up to this date is almost perfectly free from scab, even those inveterate scabbers, the White Doyenne pear and Red June apple will give perfect fruit this season, notwithstanding the *Aphis Mali* or apple leaf louse, that Dr. Hull insists is the parent of the scab, is greatly more plenty than last year. We can count with certainty of having a great crop of apples in this neighborhood. They are preyed upon as usual by the codlin moth, but like the measles in B. Young's family there are not moths enough to go around. We have at least three curculios here that prey upon the apple and apple tree; I think four that are increasing and are very destructive. I keep my eye on them, and shall write them up some day, *that* will fix *them*. In my next I will give thirty years experience on the value of *varieties* of apples in the west.

D. B. Wier, *Lacona, Ill.*

Pear Trees in Grass.—A correspondent of the *Gardener's Monthly*, at Warrentown, Pa., says that "the war gave me a wrinkle I didn't know before. No fences; no cultivation; and in the country grass will grow. So my trees were in grass, and are still in grass, and I intend to leave them in grass as long as I get the pears I do.

Oregon Pears.—Some unknown friend, says the *Christian* (Oregon) *Advocate*, left on our table a fine lot of pears; four of them weigh together eight pounds and one ounce, the largest one weighing two pounds and three ounces, the smallest one twenty-nine ounces.

Insects in New Hampshire.—We learn from the *Mirror* that noxious insects have seldom if ever done so much damage to crops, trees, fruits, and vegetables, as the present season. The cut worm, currant worm, and borer, vine bugs, froth insects, and their congeners are on the rampage. On the grass the "froth insect," says the *Mirror*, "of which we have several times spoken in former years, has waxed powerful for evil, and many a field of grass has been marked for destruction by the insect enshrouded in a white foam." Will the *Mirror* tell us something more about the "white foam" insect—a more definite description, and in what way it affects the grass? Of course, like every other plague of the Eastern States, it will come to Prairiedom eventually. We should like an introductory letter to the varmint before it gets here.

From the Grape Culturist.

Thinning out Grapes.

Ed. Grape Culturist:—Is the importance of thinning out the fruit of the vine, duly considered by the majority of cultivators? I think not. From close observation and even sad experience, the subject, in my opinion, calls for much more attention than is usually given. In young vines this is particularly the case. Such vigorous and hardy constituted varieties as the Concord, may stand it to a considerable extent; but even they will eventually suffer. This fault is not only to be found in the vineyards of the novice, but can be seen almost every where in charge of those who known better.

This then being admitted, the next question is, how shall it best be remedied?—Shall we prune so much shorter, so as not to leave more wood than the vine can carry safely through, or leave more wood, and then thin out the bunches? The latter, in my opinion, will be the best; for by the first plan, we get our fruit too much crowded, and throw too much force into the young canes for the following year's bearing. My impression is, that when a vine is pruned to what would seem about right, the pinching out of every third bunch, at the first operation of pinching back, would be the best method. I would leave but two bunches on each bearing shoot; and in some instances but one.

We all know that the forming of the seed of any fruit is the heaviest tax on the plant. This being the case, do we not give considerable relief when we diminish this tax one-third? I think we would be safe in counting on having the same weight of fruit in the two bunches, as if three are left. Some years ago we grew Concord bunches in this way, which the committee who were to test them would not admit to be that variety until they tasted them. For marketing table grapes, this is particularly practicable. For instance—let one man take Concords that will average three-fourths of a pound to the bunch, and another have them as usually grown, my word for it, the large bunches will command nearly double price, not only among the wealthy, but the masses.

What is your idea about this? My object in writing this is to elicit experience from others, and your own opinion in particular.

S. Miller, *Bluffton, Mo.*

Remarks by the Editor.—Our friend is right in attaching a great deal of importance to the thinning out of the fruit. The overloading of the vines has ruined many a promising vineyard already. The best course, in our opinion, is, not too prune too short, as many buds will not even start; but do the first pinching early; just as soon as the young shoots are long enough to discern where the embryo fruit bunches will be, then rub off all weak shoots, and reduce the number of bunches as he suggests. In a future number we will describe it fully, and hope to be able to convince our readers that this is the proper course to grow the best of grapes.

Curculio, Pigs, and Hens.

Mr. J. J. Babcock, of Kalamazoo, Mich., and some of his neighbors, have a common sense way of keeping the curculio in subjection, and thereby raising good crops of plums, as in times of old. He writes to the N. Y. Farmer's Club:

"My remedy for the destroyers of this fruit is not one of my own discovery, but one practiced by several of my neighbors.—Just across the street lives a man by the name of John P. Glover, who, this year and a number of years past, has succeeded in raiseng several bushels of nice blue Damson plums, and he is not alone in this. Mr. Glover told me that he selected his grounds for his plum trees near his barn, planted them altogethra, surrounded them with a tall picket fence, and made his hen-house in the enclosure. He keeps from 20 to 50 hens. He also puts into this same enclosure two pigs; the hens are fond of insects; there being only a few of other kinds, they gather and swallow eagerly all, or nearly all, the curculio; should any escape the hens and sting the fruit, the fruit falls, and the pigs being fond of plums, eat them at once. The plums I have seen of his raising were free from stings, large, smooth, and delicious as they used to be thirty years ago, before the curculio was so destructive. The whole thing, from beginning to end, is most profitable. A plum-orchard, a pig-pen, and hen-park, all on a small piece of ground. The eggs, pork, and plums produced more money than could have been obtained had the ground and expense been applied to any other purpose."

New Method of Grafting.—The editor of the *Western Ruralist*, published at Louisville, Ky., speaks of a visit to the orchards and nurseries of Mr. S. L. Gaar. In his "Horticultural Notes" we find the following descriptive method of grafting practiced by Mr. G.:

"In May last he received by express some cuttings of a new pear, which were inserted in this way: The top of a thrifty young tree, just above the first three or four lateral branches, was sawed off, the stump left after removing the top, about two inches in diameter; dividing the cylinder of bark into four equal parts, four grafts were inserted between the bark and albumen in a particular way—at each of the four points of equal division in the bark two vertical incisions were made through the bark and downward an inch or so—the two incisions about as distant from each other as would barely admit the graft when beveled on one side ready for insertion. This narrow strip of bark is then separated easily from the albumen, the graft inserted, the back afterwards pressed against the inserted graft, and the whole made fast by ligature in some form, as best suits the operator."

A Select List of Hardy Perpetual Roses for the West.

Baron Prevost, very large, rosy blush, free, robust.

Charles Lefevre, large, dazzling crimson scarlet.

Dr. Arnal, superb crimson, vigorous, fragrant.

Duchess Cambaceres, bright rose, large, fine, strong.

Eugene Appert,, dark velvety crimson, extra.

Francis Ist, full double, deep cherry red.

Gen. Jacqueminot, brilliant velvety crimson, very free bloomer.

Gen. Simpson, fine form, bright clear pink.

Gen. Washington, brilliant rosy crimson, large and fine.

Giant of Battles, very full crimson, Changing to purple.

La Brilliant, medium clear, brilliant, light carmine red.

La Rhone, very large, full, brilliant vermillion.

Madam Laffay, rosy crimson, large and full.

Madame Bonnaire, large, full, pure white.

Maurice Bernadin, brilliant vermillion, large.

Prince Camille de Rohan, full, crimson maroon, extra.

Prince Albert, full double, deep red, very fragrant.

Souvenir de L. R. de Belge, very deep, crimson red, very fragrant.

Triumph de L'Exposition, very large, full, magnificent, but blooms once.

Victor Verdier, very large and full, clear carmine.

The above list of hardy perpetual roses embraces all the different shades of color, and form and as far as the list goes is among the very best cultivated, and will give full satisfaction in the west.

J. S., Asst. Ed.

For the Western Pomologist.

Drying and Preserving Flowers and Plants.

It has been truly said, "there is no luxury so cheap as green leaves and sparkling and deliciously scented flowers."

The season of flowers in this northern latitude is so limited that very many of our most beautiful plants and flowers have but a very brief existence. But the season of their enjoyment may be perpetuated in the Herbarium, and to this end I will give my method, a very simple one, (and by the way, that I learned from the columns of the old *Northwestern Farmer*, pubsished in this city some years ago by the now Ed. of the Pomologist.)

Take printing paper—old newspapers will do—fold and cut, make sheets of any desirable size. Lay three or four of these sheets on a level, smooth board. On this spread out the specimen, its leaves in as perfect and natural position as possible. Let the specimen be of good size, giving a correct idea of the plant—if small, the whole plant should be taken. At any rate, be sure and get the leaves which spring from the root, if there are such. If the plants or flowers be small, two or three may be laid side by side, according to the size of your sheets. Over these, lay several more sheets carefully, so as not to displace the petals or leaves, and then more plants and papers, and so on. On top of all lay another board, with some kind of weight of 40 or 50 pounds. For the first few days change the papers, and dry them twice a day; after that, once, till the plant is pretty dry. If fine leaves or flowers become crumpled, in first putting them in press, the next time you change the papers, take a knitting needle and straigthen them.

When dry, lay them aside between sheets of newspaper till you have a good collection, when you may arrange them in an Herbarium, which should be made of stiff paper. Have some fine glue (dissolved) in a cup standing in a sauce pan of hot water on the table beside you. Take a specimen, lay it on its face on a newspaper. With a painter's brush, about the size of your little finger, apply the glue lightly to every part of the back of the plant; then quickly lay it upon the page as you wish it to remain. Lay a piece of newspaper on it, and with a cloth press it down firmly—examining to see if every part adheres to the page. Before the march of improvement many of the wild flowers of the prairies are fast disappearing, and a collection made in a newly settled country will ere long be of rare interest and value.

S. T. A.

Dubuque, Iowa.

Care of Rose Bushes.

The practice of budding and grafting roses on the roots of some strong, growing, wild variety is a common one, and is done because the choice blooming variety is thereby made to grow more strongly and give larger and more beautiful flowers. The results are always good, if the owner will but remember to watch and carefully cut away every sucker shoot that may spring from the wild roots, and at this season of the year it is more especially a care and observance that belongs to every owner of a budded rose bush. Neglect of this item at this time is very liable to cause many rose owners to impugn the honesty and truth of nurserymen and commercial florists, when their own inattention and practical labor was the cause of their rose beds being filled with briers instead of hardy monthly roses.

The little slug or worm that appears on the leaves of rose bushes, should be watched, the leaf at once picked off and destroyed. A little daily attention will keep the bushes clean all summer, but if the work is neglected untill the worm gets abundant, syringe with a solution of strong tobacco water, let it dry, then syringe with clear water, and at once dust with fresh quick lime or flour of sulphur.—*Addi, in Cleveland Herald.*

A new class of Petunias has made its appearance in Europe, called the Anemone flowered.

Climbing Annuals.

Climbing Cobæa (*Cobæa scanaens.*)—A rapid growing vine of great value where immediate shade is desired.

Cypress Vine (*Quamoctil Vulgaris.*)—A plant with elegant cypress-like foliage; requires warm soil and exposure to succeed well; flowers of various colors, as scarlet, white, and rose.

Morning Glory (*Ipomœn purpurea.*)—A well-known plant of much beauty and variety; flowers variously covered, but blue prevailing, more or less striped or margined with white.

Balloon Vine (*Cardiaspermum halicacabum.*)—A fine growing plant, climbing by tendrils, chiefly ornamental on account of its inflated pods, which give to it its common name.

Calampies Scaber.—A plant of rapid extension; foliage thin and scattered; valuable for partial shading, flowers tubular, orange-colored

Lophospermum Scandens.—Equal to the Cobæa in rapidity of growth, and valuable where a large surface is to be covered in a short time.

Maurandca Burclayana.—A small foliaged graceful-growing plant, with trumpet flowers of various colors; the white variety very delicately beautiful.

Thunbergea Alata.—In rich soils this will make a good display; on dry, light soils, it burns out in dry weather; flowers—orange, white and yellow with dark edge.

Plants in Rooms.—The *Rural New Yorker* says not far from New York City is a house with one charming room in it. One of the charms is the border created by two pots of ivey. It has been growing three or four years, and now runs entirely around the room, over the tops of the windows, and is beautiful beyond description. Plants and flowers may be made to furnish a room beyond the reachjof satin and rosewood and at small cost.

Never train or support a plant unnaturally. Climbers will do hanging about.—Trailers will not do climbing.

Embargo on California Fruit.

A correspondent of the *Chicago Tribune* speaks discouragingly of the shipment of fruit from California. He says:

"I am sorry that I cannot tell the readers of the *Tribune* that they will have their palates tickled with the delicious fruits of California this season; but such things cannot be. The experience of last year demonstrated that to ensure a decent profit on fruit shipments to the east, the freight to Chicago should not exceed $600 per car load. A convention of fruit-growers met here and held a consultation, through a committee, with the Pacific Railroad Companies, but could not get the tariff reduced to the figures which would warrant the venture being made, and, consequently, no large shipments will go forward. The tariff adopted by the two Pacific Railroads for this year is: From Stockton to Omaha by freight train, $600 per car; by passenger train, $850; to Chicago or St. Louis $650 by freight, and $950 by passenger trains.

Who is to blame for the crushing out of an important interest I do not know, but the Central Pacific Company declare that they are ready and willing to do the fair thing if the other company would do the same. As it is, the tariff is practically an embargo on shipments, and thousands of tons of such fruit as you never raised, and never could raise east of the Rocky Mountains, must be fed to the hogs or rot on the ground in California again this year."

For the Western Pomologist.

Iowa Eastern Horticultural Society.

MEETING AT IOWA CITY.

FRIEND MILLER:—It is to be regretted that our Society and your District Society met the same week in June. Our appointment was made in February and published in the *Homestead*, and I believe in the POMOLOGIST also.

Now take notice: Our Constitution fixes our annual meeting the third Wednesday in December. If any other Society in this or any adjoining States, meet in that week, we do not know it.

But as it was, we had a good meeting—so all said *and acted*. There were about one hundred present. Our Iowa City friends done the generous and good part by us; and we decided to hold our next annual meeting there in December. Our Illinois friends, six of their best men, came over to help us. I am aware that they have plenty more at home *equal to the best*. But we had Arthur Bryant, Sr., Robert Douglas, Samuel Edwards, M. L. Dunlap, Wm. Nourse, and Mr. Richmond; and although Mr. McAfee of Freeport was not there in person, he sent us a most valuable essay on timber culture, in which he suggested that its importance required a special organization for its encouragement and promotion.

Mr. Edwards also gave us some good talk and an essay on the influence of trees on the climate; their usefulness as wind-breaks, shade and ornament; the great value of timber for our every day uses. Our supplies are fast disappearing, and from this time on, the lumber markets of the West are bound to advance.

Mr. Douglas, the king of tree propagation, gave us valuable instruction in that particular trade. When he was pressed to give us an estimate of how many trees he had in the different stages of propagation, he reluctantly told us that he had of the different varieties of the Evergreens and European Larch, about one million transplanted, two and three years old. In the seed beds, not transplanted, one and two years old, at least twenty millions!! Those Illinois gentlemen present, well acquainted with Mr. Douglas, and with his nurseries, said no doubt his estimates were under, rather than over the actual quantity.

The statement was drawn from him that we might realize to some degree the magnitude of the work before us, and the amount of this work already begun, of planting trees in this country—a work entrusted to us and to our children, of "subduing the earth," planting it and finishing it up for the beauty and comfort of the home of both man and beast—the paradise of the world.

The subject of the apple was fully discussed. Arthur Bryant, Sr., occupied the floor more than half an hour. He has had more than thirty years' experience at Princeton, Ill. He says we now have great advantage of what he had when he began in 1836. The greater part of the varieties that he planted for several years were not adapted to our climate and soil. And now, for the want of care and information as to what we plant, about one-half are failures. These Horticultural Societies are doing great good in giving information as to what varieties prove profitable.

We recommended a list for general planting in this part of the State, which list I have not got, but will try and furnish it for your August number of the POMOLOGIST. One must plant such as have succeeded in his neighborhood, and cannot be confined to any other list, and the number of varieties in the orchard should be very few.

Mr. Dunlap of Champaign, Ill., gave us some very good remarks on small fruits and gardening. Every family should have plenty of strawberries, currants, raspberries, blackberries, and grapes, for pleasure, luxury, health, and profit. We are not favored with many other products of the soil that we can put to all these good uses at the same time. What we want is a little more knowledge of how to cultivate the small fruits, and to bring the girls out into the garden to help raise them. If girls would spend a portion of each pleasant morning and evening in the garden cultivating the soil, it would be health, profit, and pleasure.

The grape came in for a share of our discussion. We recommended a list—Concord—and we stopped there, until some other variety can be produced that is equal to it No doubt we shall soon have other reliable and higher flavored varieties to make up a variety of grapes.

Officers elected to serve until the annual meeting in December next:—Suel Foster, President; L. Kauffman, Vice-President; J. L. Budd, Secretary; H. Strohm, Treasurer. Also, five Directors, whose names I have not at hand. Our District embraces fifteen counties, namely: Jackson, Clinton, Scott, Louisa, Muscatine, Cedar, Jones, Linn, Johnson, Washington, Keokuk, Iowa, Benton, Tama, Poweshiek.

The south-east and north-east parts of our State should form a similar Society this Fall, and advance the good work in their parts of the State. Other districts will soon follow, and all will help to build up and support the State Society, rather than detract from it.

SUEL FOSTER.

For the Western Pomologist.

Meeting of the Nebraska State Horticultural Society.

Having been at the meeting of the Neb. State Horticultural Society, held at Omaha, June 15th and 16th, I made a few notes which may be of interest to the readers of the *Pomologist*.

The display of green house plants in pots was very fine. Messrs. Ryan & Co., and Mr. Aumuck, of Omaha, and Mr. P. J. Hesser, of Plattsmouth, all exerted themselves to make the Fair a success. The show of cut flowers and boquets was not what it should have been. The amateur florists of Omaha, must have been asleep to the interests of the Society. Mr. T. J. Allen contributed a large assortment of Rocky mountain flowers, plants and evergreens. Although the evergreens were dug on the 11th inst., they were but just commencing to grow.

The collection of vegetables was creditable.

The amount of small fruit presented was *very* meagre, for the reason that the crop is almost a total failure in these parts.

Three varieties of apples were upon exhibition, Rhenish May, Winesap and Missouri Keeper; all in a perfect state of preservation. The first two were grown by the president of the Society, Mr. Masters, of Nebraska City.

We were agreeably surprised by the attendance at our meeting of our fathers in Pomology, Hon. Marshall P. Wilder, Mr. Charles Downing, Messrs. Ellwanger and Barry, and Mr. Clark, of Framingham, Mass. These gentlemen, with their families, are on an excursion to the land of big pears and cheap grapes.

One anecdote related at the meeting must be preserved in print.

At the first meeting of the Northwestern Fruit Growers' Association, held at Burlington several years ago, Mr. Barry presented samples of New York apples, which were but little more than half the size of Iowa apples beside them, of the same varieties. Upon his attention being called to the fact, he stated that his apples were of only one season's growth, and did not propose to bring them in competition with two or three year olds.

Judge Mason gave the history of Mason's Mountain Blackberry. He said that one Thompson of blackberry fame, dug up a seedling that had grown from a pile of sawdust that he had thrown from his ice house; and disseminated it as valuable. The judge says it is utterly *worthless*.

H. C. R., *Council Bluffs*.

UTILITY OF FRUIT.—Good fruit is a great luxury in which all may freely indulge, not only with impunity, but as to health as well as pleasure. It affords wholesome sustenance and lessens the excessive use of various articles of diet, the too frequent use of which tends to dyspepsia and other ills which flesh is heir to. In many instances complaints of long standing have yielded to a judicious use of fruits. It has been declared by medical men that "apples, eaten at breakfast with coarse bread and butter without meat, remove constipation, correct acidities, and cool off febrile conditions more effectually than the most approved medicines."

CHIP BASKET

APPLE SEEDLINGS.—We have letters of inquiry where seedlings for root-grafting may be obtained the coming fall.

FRUIT IN EASTERN IOWA.—Dr. James Weed of Muscatine, writes us July 5th:—"Very dry, light crop; codling worm destroying nearly all the small crop of apples. Cherries were very few and nearly every one contained a larvæ of a curculio. We have never been thus troubled before. Small fruit nearly a failure. Grapes are, up to this time, very promising, Peaches came through the winter for the first time in 15 years, but I don't think the curculio will spare a single peach to ripen."

J. N. WHITNER. R. H. MARKS.

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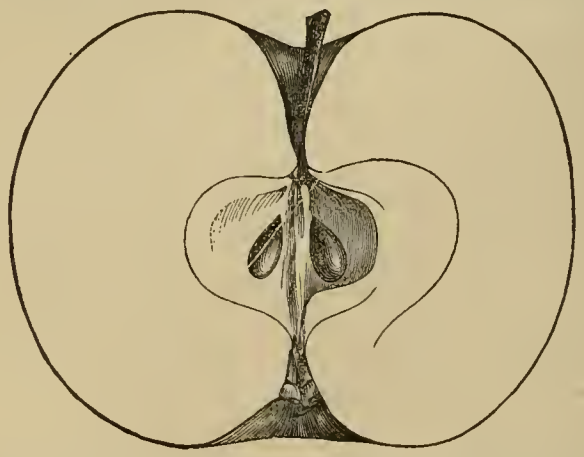

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MARK MILLER,
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For the Western Pomologist.

A New Cherry—"Dyehouse."

BY H. T. HARRIS, STANFORD, KY.

Ed. Pomologist:—Last March I wrote an article which was published in the *Horticulturist* for that month, describing what I considered a new seedling Morello cherry.—The article brought me an extended correspondence from all parts of our country—even from California and Utah. Until then, I had no idea of the demand, in rigid climates, for an early and hardy cherry.—Such was the interest manifested in it that I wrote a second and more extended description of the fruit, which was published in the *Rural New Yorker*, in June sometime. This brought me more letters, asking many questions and seeking to obtain trees. In order to ascertain whether this was really a new fruit, or some old kind unknown in this region, I sent some of the earliest to ripen to F. R. Elliott, an eminent horticulturist of Cleveland, Ohio, for his opinion. The specimens sent were not kept perfect during transportation, and Mr. E. pronounced them the "Belle de Sceaux, or "*perhaps* some new seedling." I subsequently sent him more of the fruit, which he got in good order, and he pronounced it the "Early Richmond." In this, however, I doubt not that he is mistaken, as a comparison of that kind with mine exhibited a marked distinction, and the cherry I claim to be new is better, earlier, hardier, and far more desirable everyway. Nowhere in Kentucky can I hear of such a cherry as mine, and only in a single county can it be found. The history of this fruit is briefly this:

Thirty or more years ago the tree was discovered in a remote part of our county (Lincoln) on the farm of a poor and illiterate man by the name of Dyehouse. It was found growing in a Morello orchard where no Early Richmond had ever been planted, and it has been bearing regular crops for a quarter of a century or more, never having failed to bear but one. Numerous suckers have sprung up from it, and they have been disseminated over this county in various places and bear the same fruit. It is the surest bearer I know of—ripens the last days of May in our latitude; color a clear, bright pink; nearly opaque; skin thin, and the fruit rich with a singularly spicy acid; not half so sour as the old Morello or Early Richmond either, to my taste. The tree is nearly a semi-dwarf, the branches not so willowy or pendant as the Morello. It is of a very decided Morello type, but partakes in wood, growth, fruit, etc., of both the Morrello and Duke families.

Those who can procure the fruit in its season prefer to buy it at almost any price to make preserves or tarts, rather than use any other kind, although it may be had for the gathering from their own or the trees of their neighbors. Until within the last eight years, this fruit could only be had on the farm where it originated. Eight years ago I purchased about fifty of the two year old "sprouts," and three years from that time I had all the cherries I wanted, and a few to spare; such is the rapidity of its growth and the early bearing of the tree. For the past two or three years I have had bushels of them on my trees and have never been able to supply half the local village demand for the fruit. They come in with the strawberry crop, and sell more readily than that charming fruit.

I have gratuitously disseminated over fifty of these tree in many parts of our diversified climate, with a view solely to do some good deed in horticulture. Last spring I sent out about two hundred (a part of which I purchased) in exchange for other stock, and for cash at about cost. I have many orders for these trees for fall delivery, and should I send out any it will not be as a *speculation*, for I should only charge enough to pay for the trees and the trouble of digging, packing, and shipping. I have a small nursery, which I keep as an amateur cultivator, to gratify an inherent fondness for horticulture, and to aid, as far as my time and means will allow, in advancing this beautiful and humanizing science, to the end that our whole noble country shall teem with our native and best fruits.

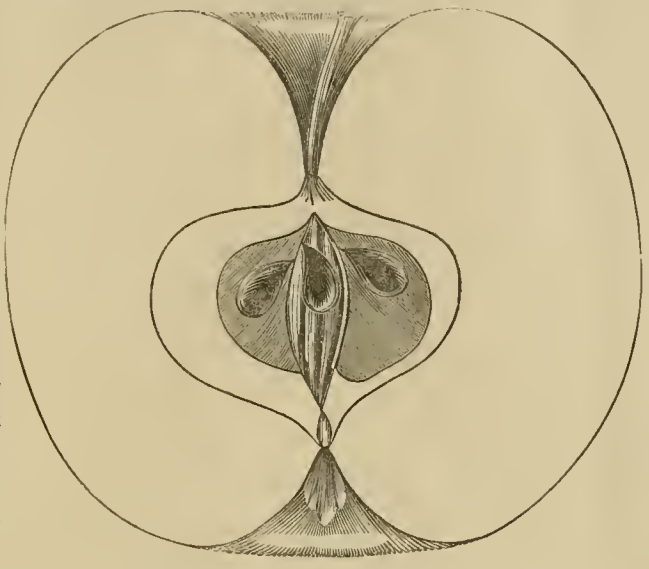
The supply of these trees will not exceed two hundred the present season, and of course but few could be sent to any one locality. I desire to see it tried in the most rigid and bleakest portions of our country, and we have sent trees to Iowa, Minnesota, Michigan, Maine, &c., &c. I shall, in October next, send you a few choice specimens gratuitously, for trial in your grounds. If I know my own heart, I would not knowingly disseminate an old fruit under a new name; in any manner lend my pen or purse in the interest of a "humbug." This *may* be a "sprout" or seedling of some old kind—it *may* be what Mr. Elliott designates it—the 'Early Richmond'—but if it is, we cannot have discover its *indentity*; nor can we account for *how* it got into an old Morello thicket, on the secluded grounds of an old man who scarce knows a cherry from a grape; and who lives away from civilization, almost, (so to speak,) in the eastern hills of our county. Besides, is it not a fact that many of our choicest fruits are brought out in this strange and unexpected manner; and is it not highly probable this *is* a seedling and new? Such, at any rate I deem it, and shall continue so to unless further light is given which will establish its identity with some old sort.

Wagner Apple.—Mr. C. A. Kniffin, Mich., writes to the *Rural New Yorker*:—"I find the Wagner exceeds my expectations as a long keeper. June 10th I compared it with the Golden Russet, and find that it excels my old favorite as a laster, being sound to the core, fresh and delicious, and not surpassed in delicacy and aroma by any apple that I ever tasted. In fact, it is almost a substitute for a Bartlett pear in June."

The Currant Worm.—A correspondent of the *Horticulturist* has found his red currants untouched by the worm, where standing alongside the black currants, while in other parts of his grounds the foliags was utterly destroyed.

The Lawver Apple.

Fruit average to large; weight from eight to twelve ounces; form globular, regular, sometimes slightly cone, some specimens oblate; skin deep crimson, with purple tinge mixed with grey towards the stem, giving the appearance of bloom, towards the eye, shining crimson; dots, small, numerous, indented, grey; stem rather long, slender; cavity wide, deep, and regular slightly russeted; eye small, closed; basin rather narrow, abrupt, shallow, regular and furrowed; core large, open; carpels large, hollow; seeds large, broad, not plump, nearly black; flesh yellow, juicy, tender, fine grained, mild acid; quality only good; use, market; season January to July.



This apple is very handsome and keeps late and if the tree is healthy, hardy and productive, will be a valuable addition to our late keepers.

The history of this apple is not very clear at present. Mr. George S. Park, of Parkville, Missouri, first introduced it and says in Mo., Agricultural report of 1868. "We got a large apple I think called Missouri Superior in the spring, some fifteen years ago; my wife suggested that we plant the seed which was accordingly done beside a stump near the house. One of these seedlings—the one under consideration—bore, I think, in five years from the seed. For the last four or five years it has done well every year, every other year a little fuller. The fruit hangs on well, does not rot, speck or scab; it is smooth and picks well. Tree a thrifty grower smooth and healthy; bark greenish brown. It has a spreading habit, makes a fine head, altogether a fine type of an apple tree. The apples keep well until June and July." "The leaf is a rich green, finely serrated; shoots dark, bright red color."

Mr. George S. Park says in his *Fruits of Western Missouri* 1869, "Lawver originated here, just come into notice, and named after A. M. Lawver, Esq., of Southern Illinois, etc., tree discovered last year."

In 1870, he gives a different account of its origin—all three reports under *his own name*. We do hope Mr. Park will reconcile these conflicting reports. We hear from Dr. W. M. Howsley a report that a neighbor of Mr. Park's procured an apple, the *Ben Davis* at *Kansas City*, and planted the seed and raised the above apple which he is inclined to think correct, because the growth corresponds to the Kansas Queen, which is of the Ben Davis seed.

Dr. J. A. Warder says in *American Horticultural Annual* 1870, "A further acquaintance with this beautiful and promising western apple entitles it to a repeated mention, especially because a correspondent desires a correction to be made in the history of the fruit not only to give Mr. Park credit for its introduction to the public but also to render due justice to the owner of the original tree. Mr. Chr. Steinweden, of Doniphan, Kansas, writes us that this apple originated on the farm of Henry Burichter two miles east of Parkville, Mo."

How to reconcile these three reports of Mr. Park's is a mystery; he says in 1868 some *fifteen years ago* he got an apple and planted the seed, and bore I think in *five years from the seed*, and for the *last four or five years it has done well*. In 1869 he says in his annual letter of *Fruits of Western Missouri*, published at Kansas City, Mo., "*just come into notice, discovered last year.*"—[J. S. Ass't. Ed.

"Errors Corrected."

Under the above caption we find in the *Kansas Farmer* of July, criticisms made upon the report of apples adopted by the Leavenworth County Horticultural Society as given in the Pomologist of July. This critic claims to be a member of the Horticultural Society. Perhaps he is such, but if so, we pity his memory.

He says: "*Editors Farmer:* I cut the following from the July number of the *Western Pomologist*, for the purpose of correcting its mis-statements and inconsistencies."

But before he gets through with his article his memory fails, and he says that: "The statement, as it is sent out in the *Pomologist*, makes the society appear rediculous before the public, and altogether unworthy of respect, to say nothing of confidence. For this reason I ask room for this."

It then appears from the above quotations that this *consistent* critic *cuts* the article from the *Pomologist* for the *purpose* of correcting the *mis-statements* and *inconsistencies* of the *Editor*, but asks room to publish it in the *Farmer* for the "*reason*" that it makes the Horticultural Society "*appear rediculous before the public*," consequently he cuts the article for a different purpose than publishing it. Having shown the purpose and reason of this critic, we shall now see his ability to sustain his statements.

He says: "It is not true that the Leavenworth County Horticultural Society adopted this, or any other list of apples for an orchard of one hundred trees as above stated. After much discussion it was determined that no list for an orchard of any size should be recommended."—"It was decided to recommend a list of varieties for the *seasons*, with the proportion of each variety"—"the whole number of *each* list being one hundred." "If these lists embrace a recommendation for any orchard it is one of three hundred trees, and not of one hundred as stated." Now we defy any person not present at their meeting to tell from the quotations made what the society did, or did not recommend or adopt.

What "*is not true.*" The adoption of *a list* of apples. The adoption of a list for *an orchard*, or the adoption of a list of *one hundred trees?* What are the "*mis-statements?*"

The varieties we gave—the number of each, or the order in which they are given. What are the "*inconsistencies?*" Placing the different varieties under the wrong season, or stating they were for an orchard instead of a nursery?

What is "*rediculous?*" Giving one hundred trees instead of three hundred? Did we not give one hundred Summer, one hundred Fall, and one hundred Winter apples, also the names and proportion of each variety? The only omission was in the word *each* after trees. Thus: "The following list of Summer, Fall, and Winter apples for an orchard of one hundred trees *each*, was adopted," etc.

The omission of this word could not materially effect the subject, because the list, with the name and number of each variety, was distinctly and exactly given as adopted by the society. That the omission did not affect the proportion or per cent of each variety is evident from our critic endeavoring to show the "novel result that would puzzle a nurseryman to fill an order,"—namely, the fractional part of some varieties.

Would not the same result follow if any other number less than three hundred trees were planted? Then for that reason is no person to plant a less number? If so, what does our proportion of trees amount to, to the public?

He says above: "After much discussion, it was determined that no list for an orchard of any size should be recommended."

We were present at these meetings and reported for the *Leavenworth Bulletin*, and did not hear a word said about the "*much discussion*" spoken of, and neither did the recording Secretary report it in the *Farmer*. Perhaps he can tell when and where it took place.

We find the following remarkable statement in the report by the Secretary, which sounds strangely in this connection: "It will be observed that the proportion of Summer, Fall and Winter apples recommended to be planted, was not under discussion." Again he says: "If these lists embrace a recommendation for any orchard it is one of three hundred trees and not for one hundred as stated." If there was "no list for an orchard of *any size* recommended" as above stated, pray how could these lists embrace a recommendation for an orchard of *three hundred trees*?

If an *old reporter* for an Agricultural and Horticultural paper could not find more inteligible inconsistencies than he has shown in reading the POMOLOGIST six months it is a high compliment to us.

If we have published such a *rediculous* report with *mis-statements* and *inconsistencies*, we find ourselves in company with an Editor whose ability he cannot question.

In *Moore's Rural New Yorker*, Feb. 26, he will find the following report:

"*For an orchard of one hundred trees in Kansas*, for commercial purposes, the Leavenworth Horticultural Society recommended by vote the following varieties." The varieties given are precisely the same and number each that we have given in the POMOLOGIST. Now, when we take into consideration the acknowledged ability of the *Rural New Yorker*, its extensive circulation, the fire-side companion of nearly every intelligent Kansas farmer, read by almost every horticulturist, taken by many members of our own society, and neither of its editors nor any of its readers make the discovery that the report as "sent out makes the society appear rediculous before the public and altogether unworthy of respect, to say nothing of confidence," we must conclude the difficulty is in the imagination of this critic, which his concluding remarks fully prove. He says: "I beg you (Ed. of *Farmer*) to inform me how Kansas is to be benefitted by an Editor of the *Pomologist* who can pass without rebuke such slanders as those of Mr. Park, to which you called attention." This contains the whole gist of the matter, and in plain language signifies that he wants us to rebuke Mr. Park for slandering Kansas as the *Farmer* has done, or else the *Pomologist* is no benefit to Kansas. It is not our purpose to discuss this matter now, suffice for the present.

We deny that Mr. Park has slandered Kansas in his article published in the *Pomologist*, and no correct interpretation by an unjealous person will warrant such an idea

We presented the paper to four Editors of the different daily papers of Leavenworth, who are at least as deeply interested in Kansas as the *Farmer*, and not one expressed or published such an opinion. Now kind friend if this is the best scare-crow you can get up we pity your inventive genius. We should not have replied to this anonymous writer if we did not think we knew him and the position he occupies.—[J. S., Ass. ED.

Hardy Offspring.

We said in the July number of the POMOLOGIST, "that healthy and hardy offspring must have healthy and hardy parentage; but it does not necessarily follow that they are *all healthy and hardy* but it follows as a law of nature that no offspring can be more hardy and healthy than their parents.

To these sentiments Mr. F. O. Harrington and Mr. Suel Foster cannot agree, but call into question.

As the truth of these principles is of great importance we will answer their objections as given separately. Mr. Harrington says:—"I have of my own raising some seedling grapes grown from the seed of the Delaware, that are no less hardy than the wild grape indigenous to this part of the country, and yet the Deleware is not perfect (as) hardy."

It appears somewhat strange that Mr. Harrington should have succeeded so well with his seedlings, when the Deleware has been before the public more than twenty years and its seedlings are almost universally admitted to be defective in health, hardiness, vigor and constitution.

Who has ever disseminated a pure seedling from it that surpassed the parent in health and hardiness? But suppose Mr. Harrington has produced one, unless he can show that the Delaware is not a cross or hybrid he fails in sustaining his position, because if a variety from different species it may have hardy blood in its parentage, which may show in some of its seedlings.

The fact that its seedlings have many peculiar characteristics show that it has not the habit of a species and must be a variety, and its quality shows it has far advanced from any of our species.

Once and a-while a seedling may fall back as it were towards the original and partake of its more hardy parent or ancestor, but this is not the general rule even admitted by Mr. Harrington, who says:—"Seed from tender varieties of the apple will produce a proportionally greater number of tender trees than seed from more hardy trees."

Exceptions cannot be taken to establish a general rule. But suppose our reasoning incorrect, is there still no difficulty in the way? Has Mr. Harrington put it beyond the possibility of a doubt that no seeds of his indigenous grape was in the ground or had been dropped or deposited there? Were all precautions used to guard the purity of seed, etc? Finally, in what manner has he tested the health and hardiness of his seedlings to be certain that they surpass the Deleware? What species of the grape is indigenous there that his seedlings equal in health and hardiness?

Having replied to Mr. Harrington, we now shall attend to Mr. Foster, he says:—"It is my opinion that the Creator has fixed bounds and limits to the advance of vegetable and animal life, but to say that we have attained to the height and limit of these improvements is not correct; for it must follow that if no offspring can be more hardy and healthy than its parents, then that limit is already reached in the parents."

This appears to be a very strange method of reasoning substituting one thing to prove another. He has substituted vegetable and animal life and improvement for *health and hardiness*, which will read as follows when they are employed. It is my opinion that the Creator has fixed bounds and limits to the advance of health and hardiness, but to say that we have now attained to the height and limit of health and hardiness is not correct; for it must follow that if no offspring can be more healthy and hardy than its parents, then the limit of health and hardiness is already reached in the parents. Now this is the correct logical deduction from his premises. That is as much as to say, that if we do not find health and hardiness in the productions of nature we can produce, impart or improve them.

This is a great mistake for health and hardiness are positive states while desease and debility are negative conditions. Remove the cause or conditions of disease and health and hardiness is the necessary result. Health and hardiness being primary states and not after conditions they existed co-equal with the organization of matter, but with increased vegetable and animal products disease and debility come as destructive insects follow the increased production of fruit. For as we improve the quality of fruit we weaken and debilitate the constitution, as strong, continued mental effort weakens and debilitates the body. All nature is placed in equilibrium—an effort of one part is at the expense of another, and when not kept in balance it becomes enfeebled and and diseased and if not counteracted will ultimately end in its own destruction.

We can hardly think Mr. Foster fully believes that health and hardiness are on the increase and that debility and disease on the decrease.

Every fact we know goes to prove the opposite. Why have the many extinct species which Geology proves ceased to exist? Gradually but certainly all organizations are tending towards the same end. Why has the cultivation of improved varieties of fruit become more difficult latterly.

Do we not find more difficulty now in cultivating the famous Newtown Pippin and Catawba? Has not the blight and numerous other diseases been on the increase? All our cultivated varieties must sooner or later give place to a new race? If the races have almost ceased to exist what must we say of their progeny?

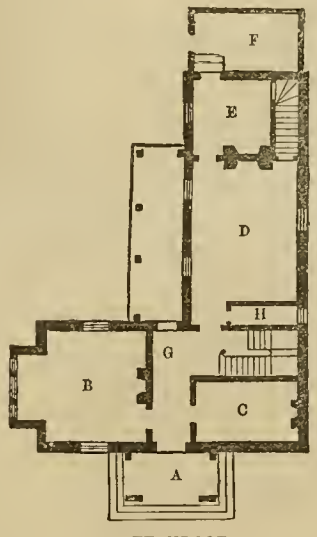
If we cannot improve or impart health and hardiness, and if nature fails to do it, then the offspring is not even equal to their parents or ancestors, and in each succeeding generation they must become less so.

J. S. Ass't. ED.

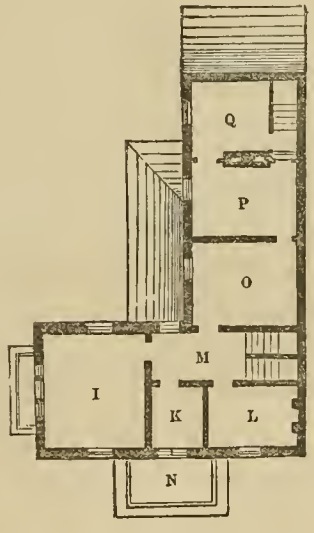
Architectural Designs.

The accompanying plan was designed by Sloan, of Philadelphia, who truthfully remarks of it that—"There is much to admire in it, though very modest in pretension. Its general

A SUBURBAN RESIDENCE.



LOWER FLOOR.



UPPER FLOOR.

appearance is inviting; an air of comfort and elegance being thrown into it by the broad, projecting roof, wide verandas and truncated gables. A quiet retreat, with appropriate surroundings, would show it to the best advantage. It is neither large nor expensive, and should be constructed of stone, though brick or wood will answer very well, where it is desirable or expedient. The arrangement of rooms, &c., is very convenient. The first story contains 4 rooms, as seen by reference to plan. A, front porch; B, parlor; 14 by 16 feet; C, library, 9 by 14 feet; D, dinning room, 14 by 18 feet; E, kitchen, 10 by 10 feet; with private stairs, and steps to cellar beneath; F, wash-house, 8 by 12 feet; G, hall with main stairs; H, pantry.

The 2d story contains a large number of rooms; I, chamber, 14 by 16 feet; K, bedroom, 8 by 9 feet; L, chamber, 10 by 12 feet; M, hall; N, balcony; O, chamber 9 by 14 feet; P, chamber, 9 by 14 feet; Q, chamber, 10 by 10 feet. The attic will contain 2 rooms, lighted through the large dormer and gable windows. We would direct special attention to this design, for we think there are many places for which it is peculiarly adapted, combining, as it does, pleasing style and a large amount of room with a moderate expenditure.

For the Western Pomologist:

Pruning—Fruit in Floyd County, &c.

All old apple trees of hardy western varieties, and such fruitful sorts as Sweet June, Early Pennock, Lowell, and Wagener, though not quite hardy here, came through last winter very well. But the winter with my assistance killed some young trees of every variety that I cultivate, while others of each variety wintered well.

Last summer was very wet and trees made too much growth, and the way I aided the winter was by cultivating too much. You may think strange that I didn't know any better. Well, I did, but I had not lost any trees in that way for three or four years. So *I did not think*, and while we fail to use our thoughts, and to be governed by the lessons that other severe winters should have taught us, we are as liable to work to the injury of our trees as to benefit them. Then there is something wrong about my foreknowledge. I only have it after things happen. The evidence I have that I helped to kill these trees is, that other trees of the same varieties that were cultivated less, wintered much better. I intend filling their places in the spring with the same varieties, as the older trees wintered well, and they have done better for a term of years than any others. Taking into account the value of varieties for a number of years, is our only true guide. The experience with a few trees for a short time often leads us astray.

The apples that are bearing best this year are Talman Sweet, Sweet Pear, Sweet June, Early Pennock, Lowell. Next best, Aut, Strawberry Haas, Dyer, Red June, Astrachan, Oldenburg, Jannett, Willow, Ben Davis. The Flemish Beauty Pear is the only one that has succeeded here, bearing a light crop.

Neither the canker worm or core worm has troubled us much. I know of no remedy that would be new to you.

Although we had a severe drouth here, the Wilson strawberry bore a middling crop, and did not fall so far behind other varieties as some claim they did in other sections.

I often see great damage done to orchards by over pruning and manuring, and this comes generally from the recommendation of inexperienced persons whose ideas are mere traditions, they received from the eastern states, where it was necessary to prune more than it is here. The eastern people largely received it from cold, cloudy England, where it was necessary to prune severely in order to let the sun and air into their fruit trees. In that country there is no danger of winter killing trees that had been retarded in ripening up their wood by severe pruning. There a heavy pruning is followed by a check in growth which is afterwards followed by a vigorous and late growth. The heads of our young trees get a plenty of sun and a great plenty of air. Prune only to keep the limbs from rubbing and crossing each other, and to maintain a well balanced head. The best fruit growers of the east are ignoring the heavy pruning practiced there a few years ago. Before manuring your young trees consider whether the soil is not already too rich, as $\frac{7}{8}$ of the soil is in the west. The other $\frac{1}{8}$ may be benefited by manure. When your trees show signs of exhaustion from bearing, then apply your manure in moderate quantities, late each fall.

Rock Grove, Iowa. E. R. Heisz.

For the Western Pomologist.

Germ Theory.

On reading the article of Prof. A. Veitch, in the *Pomologist* of August, (inst.,) on page 106, I was forcibly struck with the expression of his views, which agree substantially with my own. I have taken the same text, but may assume a different stand, which I beg leave to say, is only suggestive to a better ellucidation upon the question not yet decided.

Prof. Owen sides with Pouchet and Child against Pasteur, Cuvier and Haller, and like Lamarck and Darvin, rejects the principle of direct or miraculous creation, and recognizes a "natural law, or secondary cause," as operative in the production of species, in orderly succession and progression.

He does not believe the doctrine that all the forms of life produced in decaying organic matter come from the germs dispersed though the air. He prefers believing that, when the requisite materials and conditions are present, other forces are resolved into vital force; and sees the "grandeur of creative power," not in the exceptional miracle of one or few original forms of life, but in the "daily and hourly calling into life many forms by conversion of chemical and physical into vital modes of force."

He draws a comparison between life and magnetism, and between all the actions of living beings, from the attraction of the amœba by a bit of meat, to the highest phenomenon of consciousness in man; and concludes that from the magnet which chooses between steel and zinc, to the philosopher who chooses between good and evil, the difference is of degree, not of kind, and that there is no need to assume a special miracle to account for mental phenomena.

I consider it but fair to state the views of Prof. Owen, as presented; nor is he singular, other savants have advocated similar doctrines; which as a believer in Revelation and the spiritual nature of man, requires restrictions. For the physical life of man is only the "caterpillar" state of the "ultimate man," and a far higher element than that of "magnetism" comes in play to account for the "mental phenomina" in a divine life or principle that "chooses between good and evil." In him who is governed and controlled by a higher law and motive than simply the phiosophic idea or self preservation from the effects of evil in this present life, without reference to a future state, which to me, is as clearly demonstrated as a veritable fact, as is my consciousness that I exist.

But my object is not to moralize nor to criticize. What is stated above is only preparatory to my subject, "Germ Theory," or spontaneous generation. Having a superior microscope, and works on those minute creations, I have read and examined, and found enough to stager the honest enquirer into the mysteries of animalsculæ and fungi, as to the source of their production, and as far as I am aware, amid the conflecting facts of research and reading, have come to certain conclusions which may be new and seem to others, yet,also highly objectionable; because, I like Lamarch and Darwin cannot avoid laying much stress upon the *influence of surrounding circumstances in modifying the habits and structure of animal and vegetable beings.* Whether we adopt the idea of "evolution" or pre-existence of germs they are logically inseperable from the idea of the origin of species by primary miraculously created individals.

In my article in same No., on page 103, cases are cited so analogous to some that came under my own observation, that I preferred giving those from a higher source of authority than what I can lay claim to. In accounting for these diversified facts, or rather in the attempt to account for them, we are forced to make certain concessions, and deviate from the "straight" jacket, system of confining the feet in wooden shoes like the Chinese "fashionables," and develope "nubins" instead of full sized God created feet, to improve our "*understanding.*" I object to the doctrine of "infalibility." If the church declares that the belief that the "world moves" is heresy, and imprisons Galileo, I will first learn if possible what the truth of the matter is—and go where truth leads, always, however, with an humble dedeference to that source from whence mind and truth emenates, not presumptiously, but cautiously and devoutly.

I hold to the "Germ Theory" so far as generic character is concerned, but when we come down to species and varieties, then I am forced to attribute the diversity to other causes. Organic life in animals or vegetables is manifested and sustained by the properties of the elements of matter and their mutual actions and combinations; the relative proportions of the ultimate elements of the proximate organic products absorbed or given out modify the cell action and final form or character of the substance.

In a subject, then, so extensive and complicated, no special action can safely be predicated. I shall therefore simply state the broad or general idea, in reference more particular to parasitic plants and animals of the lower forms that are known by various names, according as the nidus or foster plant or creature to which it is specifically confined, giving them character differing from those found elsewhere.

We will suppose a minute germ or sporule of a fungus, which differ from seeds proper in not being generated by impregnation, and having no definite and predetermined points of growth, but springing forth into young plants from any part of their surface. These are known to float in the air. If the residue of rain or snow-flakes, or the dust of the trade winds, as well as from various other sources, be examined microscopically, numerous animal and vegetable productions may always be detected; and the lower forms of either kingdom are propogated with such extreme rapidity that the swarming of animals or vegetables in *infusions* seems almost magical.

We will suppose two or more trees differing generically—which implies that some element, or combination of elements, differs in their character in the one from that of the other, to produce this generic difference, otherwise they would be individually alike, and consequently no generic difference could exist. Then suppose again that the same sporules, perhaps originating from a different foster-plant than either of the three we have supposed lodgers on the three several trees which we will consider sickly or luxurious, in short, in a condition to vivify or nourish the germ or sporule.

Now when we consider the elemental differences in the several trees, shrubs, or herbs, and the pabulum or stimulous it imparts to the growing plantlets, is it strange that this difference in its composition should produce a specific difference in its development. We know this to be so in the formation of minerals and chemicals; we know that the change of food produces changes in the higher organized insects and animals.

Taking this view of the case the fungus on the casks in the cellar, and those on the drops of tallow dropped by miners, and found no where else, need not to have been floating about loose since the creation, until tallow candles were invented, &c. We must, however, admit that an internal impulse is associated with external circumstances in the development of the sporule, without necessarily advocating spontaneous generation without a germ. I find since penning the foregoing that my idea is not original. I just read that Buffon supposed that certain type forms were at first miraculously created, and that most of the so-called *species* exemplified degenerations from such originally perfect types; applying this view to the two hundred Mammalian species, so well and eloquently described in in his work, he reduced them to about fifteen primitive stocks; but admitted also certain isolated created forms, which represented both species and germs.

Having already exceeded my limits I must stop abruptly as it may seem with the old theory of heterogenisis after all, unimproved.

Lancaster, Pa. T. Stauffer.

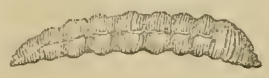
Insect Power.—The ravages of the miniature insects upon plants and fruits clearly demonstrate that there is no kind of creatures in creation so insignificant as not to be able, when sufficiently numerous, to become the most formidable scourge of mankind.

Concords per Acre.—B. L. Kinsbury stated lately at the Alton Horticultural Society, that his vineyards of the Concord yielded two tons per acre, and after deducting expenses the profits were four cents per pound, or $160 per acre.

Entomologist

The Apple Tree Borer--(Saperda Bivitata).

The most insidious enemy the orchardist has to encounter, is the subject of this article. Warmed into life, the larvæ at once seeks concealment beneath the bark of the tree. This pest of the orchard attacks the apple, quince, thorn and some other trees, but the apple tree appears to be its favorite. The larvæ enters the tree in July, or thereabouts, and buries itself under the bark for the first season—that is, remains there until the following spring. If not dislodged, the next season we find him boring into the wood of the tree, and with strong jaws cutting a sylindrical passage upward, six to twelve inches, and terminating his burrow at some point in the bark. Here the worm undergoes transformation, and rests till its wings are completed, when it comes forth from the tree a winged beetle. How long the worm remains in the tree is not definitely known. Harris and other learned entomologists think nearly three years—not *less* than two. The perfect insect comes out of the tree pretty uniformly in the month of June, and in a few days thereafter the female deposits her eggs upon the trunk of the tree at, or a little below the surface of the ground, and from which her progeny soon hatches. The beetle does not stir about much by daylight, but like the moth of the canker worm, is active at night. She flies about among the trees, seeking food and laying her eggs.



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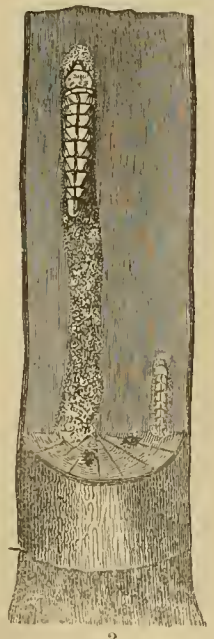

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By September, the grub or larvæ will have cut its way through the bark, and may be found between the bark and the sap wood as previously stated. At this stage of its progress, the grub may be easily ferreted out and destroyed, and with little or no damage to the tree. But if allowed to push on for another season, the tree is vitally weakened, if not killed outright. A little practice will enable any person to find out his whereabouts. A little hole, or a speck upon the bark resembling very fine saw-dust will, on removal, reveal the burrow of the enemy. With a sharp pointed knife cut through the bark and take him out, but if burrowed into the wood, follow him up with a flexible wire. In looking after this borer first, carefully remove the earth from around the tree down three or four inches. We have never found the entrance of the grub above ground, but almost invariably about one inch below. In some cases we have taken no less than fourteen grubs from a single tree at one hunt.

Various remedies are prescribed against the attacks of this insect, such as a coating of whitewash to the trunk of the tree in May. The application of a wash made of soft soap, tobacco water and sulphur is also recommended. If such appliances are made use of, the wash should extend below the surface, for we are convinced that the grub, if hatched above ground, descends below before entering the bark. But with all the watchfulness and preventives recommended, our chief reliance is a careful examination of the trees annually, sometime in the month of September or October. To make thorough work, leave the earth away from the trees, and in the course of a week or two repeat the hunt. Trees may be infested by this borer for a year or two before showing much evidence of its presence. The first indications of injury are manifest in a feeble growth and yellowish cast of the leaves. Now, and for a month or two to come, is the time to hunt out and destroy this pest, and no one having an apple tree should fail to do it.

Explanation of Cuts.—Fig. 1. The larvæ or grub. Fig. 2. The beetle or perfect insect. Fig. 3. Section of a tree showing the grub, or worm working its way up into the interior of the tree. A, surface of the ground. The black spots below the surface line, entry places of the grubs.

For the Western Pomologist.

Fruits and Insects.

Friend Miller:—Our fruit crop this year is extremely light, and most of the varieties that this would be the bearing season for have some fruit upon them. The Wine Sap for the first time is a total failure. Last season they promised fine, but the scab ruined them, and in this variety I am disappointed. I looked for the Wine Sap never to fail, and now for its future. I have set largely of this kind. This tree has been hurt either by the wet last season, or the freeze, or both; and to these I ascribe its failure, and I now think it will recover its health again, and give us good crops. I do not dispair of it, and think it will come out as good as ever. My younger trees do not show these sad results. My White W. Pearmains are doing better this season than common, save the apple moth. All of our standard varieties are doing as well as could be expected under the circumstances There are many of the tender kinds that should be touched tenderly, the Rambo, for instance. As for insects, the Canker worm, I have given my treatment of them in former times, which has proved eminently successful with me; and also borers, they do me no damage. I have a large number of trees set, and manage these fellows successfully. The apple leaf louse, (*Aphis mali,*) is doing a great deal of damage to young trees, killing many. I know of no remedy, unless it should be a dip in hot water. I fondly hope some parasite may yet appear to feast upon them.

The fall Web worm (*Hyphan tria textor,*) has been very prevalent this season, both upon young and old trees in the orchard, and are equally numerous outside on the oaks, hazles, etc. These will make nude our trees in a few days, and then starved out, they have to evacuate.

The Core worm, spoken of by you, I apprehend to be the Codling moth, (*Corpocapsa pomonella*). I hardly know myself how to combat these; they will probably destroy one half the fruit grown this season. Their presence is so recent, and their work so insidious, that we have had but little opportunity to experiment with them. I recommend that old rags be placed in the forks of trees, and examined from time to time, and doubtless during the season we may have a chance to destroy many insects that come to prey upon our trees, being careful not to hurt those that come to lend us a helping hand in the good work; and right here the orchardist needs light to know when he is right and when wrong. No doubt fires kindled in the spring and summer would do much to help us kill our enemies.

Our trees in this region have had a hard time for two years past—the floods and the early fall freeze. I do not think it is the winter, yet during the winter the ground became very dry, and froze deep, which is injurious to young trees whose roots are shallow; yet I do not despair for fruit, as many do. We have many varieties that do well, and time will develop many more. So I say let us persevere, and we will have plenty of fruit for ourselves and little ones, and to treat our friends who come to see us, and a man who devotes a reasonable share of his time to fruit will get as well rewarded as at any thing else, and of this he ought not to complain. Simply planting out a fruit tree, and then let it take its own chance for the balance of its life-time won't do. That kind of fruit raising won't pay. He must attend to it, and so of any thing else. He must dress his orchard as well as his garden, or he will have nothing in either case.

Albia, Iowa. W. G. Clark.

For the Western Pomologist.

Stop and Think!

History reaches not beyond the time when man was engaged in Horticulture. Ever since the first garden was planted, the skill of the practical Horticulturist and the study of the scientist have been freely used to discover new fruits and to improve old ones, and bring into practice better modes of cultivation. Century after century has passed away, and now, after all this expenditure of time, skill, and thought, we are obliged to confess, that never were our trees and vines so scourged with disease, or tormented with devouring insects as at the present day. Blight, scab, rotten root, mildew, gum, bark killing, yellows, grape rot, black knot, winter killing, premature decay, unproductiveness, defoliating, curculio, borer, codling moth, canker worm, currant worm, &c., &c., &c., make a combination of troubles that may well appall the stoutest heart. What is the cause? What is the remedy?

Stop and think! Is it not possible that there has been something radically wrong in our practice that has gradually led us into this condition? Some of our wise ones tell us that the destruction of the forests and the impoverishment of the soil will account for all our woes. Yet, at the same time, the pine, unaided by the skill of man, raises its evergreen top an hundred feet or more, and generation after generation of men listen to the soughing of the wind among its million leaves.

The Black Walnut, planted by the provident squirrel, two hundred years ago, and till only by an annual mulch of its own leaves, in perfect health still drops its annual crop of perfect nuts to feed its planter's descendants. The beech, the birch, the oak, the spruce, planted and tilled by the Great Gardener himself, in accordance with His own laws, still grow in pristine vigor unharmed by disease and bear their regular crops of fruit perfect in its kind.

Originally—we have a right to suppose—apple and pear trees were healthy as the pine and birch; but while the one, under the skilful manipulations of man has become fearfully diseased, the other, subject only to the irrepealable laws of nature, thrives in perfect health. Stop and think!

What have we done to these plants that we have taken under our special guardianship and so carefully fostered, that has proved so disastrous? Is it possible that in our anxiety to grow fine fruits and flowers and thrifty trees, we have all along been thwarting nature, and breaking nature's laws, and that we are now paying the penalty?

Is it not possible that, by our constant digging of the soil, our constant forcing to unnatural growth, by stimulating manures, our constant cutting with knives and saws, our constant efforts to secure a plethoric growth in season and out of season, we have in the course of successive generations, produced a condition so monstrous that nature takes these methods to remove the monstrocity from the face of the earth. Are we sure that because a tree grows vigorously under the influence of high stimulants that it is in the best possible condition to ensure permanent health or produce healthy descendants? Does not the contrary rule hold good in the animal kingdom? may it not in the vegetable?

Take a goose, place it in a dark box, nail its feet to the floor, and force rich food down its neck with a stick and the bird will fatten with wonderful rapidity; yet who would advocate such conditions as calculated to maintain the stock in health for successive generations?

So with trees. An apple tree or grape vine forced by a liberal application of manure and by thorough culture of the soil through summer and fall will usually make a magnificent (?) growth, and its dark green foliage and smooth bark *may* be taken as positive proof that it has had treatment exactly adapted to its wants. It is fat as a goose.

Yet who shall dare say that such a condition is certainly best for the permanent health of the individual specimen, or for the future generations of trees and vines it may produce?

It is becoming fashionable to say that nature is no guide, for we can beat her all out in growing fine fruit. Yet when we compare the trees in our orchard with the trees in the forest, and the plants in our gardens with the plants in the fields and marshes, we are saddened to notice how deficient in health are our pets, and too fully realize if left to themselves, how soon they would be overrun by the sturdy vegetable savages around them. Stop and think!

In this age we claim great knowledge and improved means of observation. Can we not then discover some plan by which we can grow fine fruit without, at the same time breeding disease in both tree and fruit? Is there no way by which we can protect our favorites from encroaching vegetation without, at the same time, endangering their own health? Is there no plan by which a fruit tree can be made to grow symetrical and beautiful and healthful and productive as a walnut, without the murderous knife and saw and plough and spade?

Is there no way by which we can come to an understanding of the fundamental laws of nature and cease breaking them, and thus cease suffering the penalties?

That we may know these laws and assist in their execution. That we may assist nature instead of superseding her, let us stop and think!

D. W. Adams.

Waucken, Iowa.

For the Western Pomologist.

Poultry in the Orchard and Fruit Garden.

We are having a very dry, hot time up here in Minnesota, though in some parts of the State it is quite seasonable. Early sowed wheat and oats, so far as I can learn, are about as usual, but other crops are rather light. Newly planted trees and root grafts make but little growth as yet. The drouth was hard on strawberries—a short season and light crop, and equally so on the raspberry; some varieties dried up before ripening. Of those that done best were Doolittle, Miami, and the Mammoth Cluster. The Green Prolific stands drouth the best of any strawberry I ever grew, and should be in all gardens. Our plum crop is moderately fair, as a whole, but badly thinned on some trees by the curculio, but least harm done where the poultry range most. We once had our currant patch enclosed from the poultry, but soon threw it open to get rid of a green worm that ate into the berry and webbed whole clusters together, and it was not long before the pest disappeared.—And so with the worm that eats the leaves; they quickly disappear when you make the patch the feeding place and consequently the resort of the poultry—the turkey doing the best service. Indeed, at this era of insect progress I would give up farming and fruit growing, were it not for the aid of my poultry. Though the currant and gooseberry patch was the chief range of the poultry, of which there were over 200 fowls, and scarce that many bushes, yet could scarce miss the fruit on the lowest limbs.—We had troughs of mixed feed—corn meal, shorts, and wheat bran for them to go to as soon as they left the roost in the morning, and later in the day, dry corn and mill-screanings. Fill up with such feed, and all kinds of fruit is safe from poultry depredations; but be sure they have plenty as soon as they leave the roost. High feed don't prevent their devouring insects. The greater the incentive to range and scratch the better, and he who keeps the large Shanghai or Brama don't know his needs.—I have done by poultry as I have by fruit; have tried nearly all varieties of note, and find, all things considered, the Dominique the best. They are good layers, good setters, unsurpassed for the table, and will scratch and range over more space than any others that I am familiar with.

Peter M. Gideon.

Excelsior, Minn.

The Bigaro Cherry.—The *Northwestern Farmer*, (Indianapolis, Ind.,) says Mr. Johnson, of the Citizens National Bank, of that city, has a tree of this variety of cherries, which is the fullest tree of cherries we ever saw, and where not too much crowded, the fruit is enormous in size. It is a rare fruit in this State, but a most excellent one. The seeds are very small, flesh solid, and flavor excellent.

THE POMOLOGIST.

New Advertisements.

Lewis Ellsworth..... *Nursery Stock.*
D. B. Weir,..... *Four Year's Experience.*
Ellwanger & Barry,..... *Fruit and Orn'tl Trees.*
Stark & Barnett,..... *Fruit Trees.*
C. Andrews,..... *Siberian Nursery.*
Stoors, Harrison & Co., *Painesville Nurseries.*
Lewis Ellsworth,..... *A Rare Opportunity.*
S. L Keith,..... *American Larch.*
Charles Waters,..... *For Sale—Miner Plum.*
Geo. Campbell,..... *All the New Grapes.*
G. & C. Merriam,..... *Get the Best.*
H. Strohm,..... *Iowa City Nurseries.*
S. M. Pettingill & Co,.. *Five Cents Additional.*
Samuel Edwards, jr.,.. *Native Evergreens.*
George Sprague,..... *Farm Stock.*
Hargis & Sommers,..... *Nursery Stock.*
Parks & Goodyear,..... *New Apples.*
Ira Philips,..... *Nursery Stock.*
R. C. Browing,..... *Doty's Wash'g Machine.*
Heinl Bros,..... Plant & Rose Catalogue.

Among the Orchards and Vineyards.

Since the first of August we have occasionally broken away from the usual routine of business and made our way out among the neighboring orchards and vineyards. One of these tours of observation was made to the grounds of Mr. James Smith—the mention of whose name alone is suggestive of that fruit of all fruits—the APPLE, and that grape for the "million"—the CONCORD. The site of these grounds is beautiful—being upon the high ridge of land about two miles south, and overlooking every part of the city. The apple orchard is a large one, numbering about 4,000 trees, many of them transplanted from the nursery eighteen years ago. They stand in straight rows 20 to 24 feet apart each way. On ten acres of the orchard the rows of trees are alternated with rows of Concord vines extending north and south. We found all these vines well laden with fruit, as they are annually. They have never received any winter protection, and little or no attention of any kind—except to run a plow or cultivator between the rows once or twice in the early part of the season, and an annual pruning. Adjoining the orchard is a three acre vineyard of Concords. Each vine is supported by one or more stakes about four feet in height—are lightly pruned in the fall or the spring, as most convenient—have no winter protection, and giving a bountiful crop of fruit annually. As to soil and aspect for the grape, Mr. Smith's experience is, that the largest and most highly flavored fruit is produced on a soil comparatively poor with a northern exposure.

In the orchard, nursery, and the vineyard, Mr. Smith has ever made the apple and the grape specialties. His first investment in the grape was $5. a vine for three Concords, sixteen years ago, and from which millions of vines now growing all over the West orlginated. It is believed that these three vines were about, if not *the* first Concords brought into Iowa. If any one anticipated Mr. Smith in this enterprise let him speak. Time proved the investment a good one, for Mr. Smith has realized large profits from the sale of both vines and fruit—and the end is not yet, for his vineyards are among the most healthy and fruitful in the West. Mr. Smith thinks cultivation of the orchard a fruitful source of blight—that, after years of experience, apple trees should be set in the orchard 26 to 30 feet apart each way—is convinced from observation, that trees with ample space to admit sunlight and air, produce more fruit, and in greater perfection than if crowded. Mr. Smith does not believe the proximity of timber any benefit to an orchard by way of protection. Trees upon the outskirts of his orchard, and openly exposed to the northwest, have done the best—a fact apparently verified this season by a very fine crop of the Red June and Early Joe on the northwest side of the orchard.

Twelve years ago the canker worm appeared on the east side of Mr. Smith's orchard. But not till 1865 in force to do any material damage, or to excite any apprehension of injury. But for three years following, its ravages were fearful—destroying the fruit and many of the trees. In the spring of 1869 Mr. Smith commenced a war of extermination against the female enemy, and so effectually was the campaign prosecuted, that this scourge of the apple tree was well nigh annihilated on his premises—no worms of any account have made their appearance since. There are some singular circumstances in the history of this canker worm raid upon this orchard, and which we shall allude to at another time in connection with Mr. Smith's *modus operandi*, in cleaning it out so speedily and effectually. Notwithstanding the fiery ordeal through which this orchard has passed, it now presents to its owner the most gratifying evidence of speedy resuscitation. For some years past the Red June throughout the country has been very much injured by what is usually denominated scab, caused, Mr. Smith thinks, by an insect. This season Mr. Smith's crop of Red Junes has been large, and the fruit perfect—realizing from this portion of his apple crop alone over $500. The Red Astrachan, hitherto a very shy bearer in his orchard, has this season been one of the most productive. Early Joe, a great favorite with Mr. Smith, (and everybody else who knows it,) also a full crop. Many other varieties are doing very well for the season.

Mr. Smith was among the early settlers of this part of Iowa. It was in 1848 that he first set foot in Ft. Des Moines—then a frontier military post. In 1852 he completed his purchase of the land at government price upon which to make his future home. At that time the investment was not considered desirable by other new settlers, but time has shown it one of the very best. By patience, industry, and perseverance, Mr. Smith has made very valuable improvements, and of a most permanent character. His extensive orchards and vineyards yield a handsome revenue, while his buildings are spacious, and provided with every conceivable modern improvement that may contribute to the comfort of himself or his family. Tree and fruit growing was Mr. Smith's object from the start, and commencing at a time in the settlement of the country when little or nothing was known about either, he was forced to learn a great deal in that dearest of schools, experience. And now, his pomological friends will be gratified to learn that that portion, (about 10 acres,) of his old orchard—so scourged for three years—is fast regaining its former glory and fruitfulness,

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GEORGIA STATE FAIR.—Of the multitude of fairs to take place this fall, special attention will be claimed for the exhibition at Augusta, Georgia, of the "Cotton States Mechanic's and Agricultural Fair Association." This is to occupy nearly the whole of the last week in October, and will be one of the most extensive festivals of the kind ever held in the South.

IOWA STATE HORTICULTURAL SOCIETY.—The Iowa State Horticultural Society will hold its 4th annual fair at Keokuk, in connection with State Agricultural Society, September 12, to 16, A very fine show of fruits is anticipated and all fruit growers are invited to send their products to the exhibition. The most intelligent Horticulturists of our own and adjoining States will be in attendance, and evening meetings will be held for the double purpose of exchanging Horticultural knowledge and cementing private friendship.

No Iowa fruit grower can afford to let such an opportunity pass unimproved,

D. W. ADAMS, *Secretary*

COMPLIMENTARIES.—We are most emphatically reminded of the season of agricultural fairs, by the accumulation of a pile of complimentary tickets from Secretaries of State, District, and County Agricultural Societies. Geo. T. Anthony, Secretary of the Kansas Agricultural and Mechanical Association (Fair at Leavenworth September 13 to 16), R. W. Furnass, Nebraska, Dr. J. M. Shaffer, Iowa, with Secretary Reynolds, Illinois, and Hoyt of Wisconsin—one and all have our thanks for complimentary invitations to their several fairs. We are also indebted for a score or more of like favors from our Iowa county Societies—ranging all around from Blackhawk, Montgomery, to Wappello. Wish we could respond in person to all these friendly tokens of respect, but we can't quite come it in the time allotted. Will our friends just take the will for the deed this time?

AN ANCIENT APPLE TREE.—According to a correspondent of the *Ohio Farmer*, Defiance, Ohio, can claim the largest and oldest apple tree known in this country. Its dimensions are thus given: "One foot from the ground, the trunk is fifteen feet in circumference; four feet from the ground it forms three branches, of nearly equal size, one of which was blown down some years since, the second blew down last spring and still hangs to the trunk, and is now in full leaf; the third branch stands erect, is very thrifty and now full of apples of good size" At an early day in the history of Ohio, Fort Miami was a military post in possession of the French, and in the absence of any thing authentic, concerning the history of this old tree it is supposed to have been planted by the French when in possession. The editor of the *Farmer* says: "This must be the apple tree known as Fort Miami, of which we saw specimens at the pomological shows, years ago. is described in *Elliott's Fruit Book*, page 791, and in *Warder's Pomology*, page 547. A medium size, late winter or spring apple, something like the Winter Pearmain."

LAID OVER.—Two or three communications especially designed for the inside form of this number, and our notes pomologicalty and otherwise on the Iowa Press Excursion are laid over. In dealing out copy to the compositors our calculations were at fault—matter enough was in type before we were aware of it, and no surplus type for more.

MISSISSIPPI VALLEY GRAPE GROWER'S ASSOCIATION.—This association will hold its fall meeting in St. Louis on the 14th inst., for an exhibition of both fruits and wine. Mr. Muir of St. Louis is the Secretary of the Association, and will reply to any inquries that may be made.

PLENTY OF APPLES.—Apples are represented in great abundance in Onondaga, Cayuga, Seneca; and other central counties in York State, so plenty that the poorer ones are considered of no account.

The Apple Crop.

Within the past three or four weeks we have visited many of the orchards and vineyards about us, and from what we have seen and gathered from others, the apple crop is every where about here exceedingly light. Orchards that gave three to six hundred bushels of apples last year, and which for years failed not to give *some* fruit, are this season literally barren. The bloom was abundant, but disappeared like mist—the blossoms dropping from the trees as they opened; and to make a bad matter worse, the core worm monopolises what little fruit there is. To find an apple free from it is a rarity. No blight worthy of note anywhere. Some orchards that presented a sorry aspect at this time last season show no signs of blight now, We have faith to believe that this malady has spent its fury hereabouts for a time at least.

THE GRAPE CROP.—Grapes may be set down a fair crop all over the State, but nowhere, by any means, a full one—clusters and fruit small. Concord will rank in size with Clinton, and Delaware with good sized peas. Both are ripening up earlier than usual by ten days. We now (Aug. 22,) have Concords near perfection. No mildew, blight or insects have molested either vine or fruit. The market is well supplied with Concord at ten to fifteen cents per pound.

The Cherry, Strawberry, and the Raspberry gave light crops and of inferior fruit. The failure of the raspberry and strawberry was owing entirely to the drouth. But the failure of the cherry is no less a mystery than the failure of the apple.

The "Truck" Business.

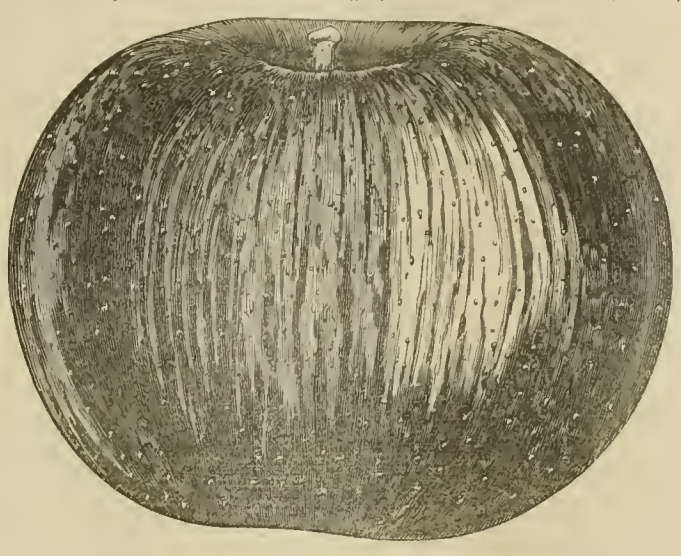
Few have any just conception of the commercial value of the 'trucking' business to some sections of the country, or of its importance to both producers and consumers. Previous to the late war, New Jersey and Delaware were the great garden grounds from whence Philadelphia, Baltimore, and New York drew most of their supplies of early vegetables and small fruits. Within the past five years, however, 'trucking' has grown to an immense business on the eastern shore of Virginia, The amount of garden products raised and shipped from the immediate vicinity of Norfolk, Va., appears incredible.

From the Norfolk *Journal* it appears that something like 10,000,000 quarts of strawberries were taken into that market the past season, the greater portion of which were shipped to Philadelphia, New York, and other northern cities. In the meantime about 200,000 barrels of peas were produced and disposed of in the same direction. The pear, peach, and grape are also grown with great success there. The business has been so remunerative, and the facilities for reaching distant markets so well systematized and perfect, that a great increase in the quantity of fruits and vegetables is anticipated next season. Probably no section of the country is better adapted in climate and soil to the trucking business than Eastern Virginia, in the region of Norfolk. But whether the business is not in danger of being overdone—whether the demand will keep pace with the supply—are questions for the consideration of new beginners. Unlike stock and grain growing, the products of which find their way to the ends of the earth, the demand for the products of the garden and orchard are comparatively restricted.

THE WESTERN GARDENER.—We have in hand the prospectus for a new monthly journal under the above title, to be published at Leavenworth, Kansas, by Dr. Wm. M. Hawsley and J. T. Lockwood.

Summer King.

Fruit medium to average; weight six to ten ounces; form round, slightly oblate; skin greenish yellow, covered and striped with dark red dots; grey, numerous; stem short, thick; cavity wide, rather deep, regular, russeted; eye small to medium, closed; basin medium, regular; core small, closed seeds short, wide, dark brown; carpels medium; flesh yellowish white, juicy; mild, pleasant, subacid, quality good; use market and table; season July to September. Tree very erect, stiff, moderate, or rather slow grower, productive. The tree blighted some little this season. The fruit is very handsome and attractive and will sell well in market. It continues in season about two months. Origin supposed to be North Carolina. Introduced here by Dr Howsley, in 1860, from Kentucky where it has been in cultivation about sixty years.

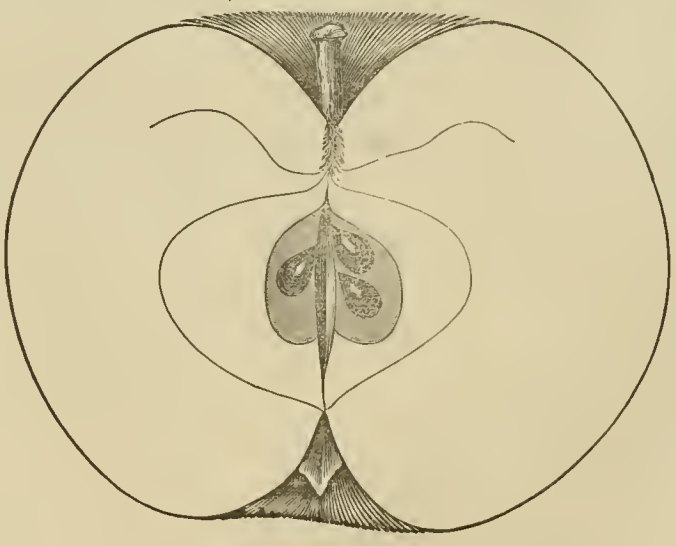


J. T. ASST. ED.

For the Pomologist.

Raspberries.

Raspberries having finished their harvest, allow me a word of commendation of the Cincinnati Red which has been the most profitable with me of any varieties for field culture for the last twelve years. It is of very fine quality, fine color, good size and prolific of fruit and suckers which is its great objection for garden grounds. It will bear carriage to market tolerably well, is in bearing about four weeks and escapes the drouth better than Philadelphia, or Purple Cane and sufficiently hardy for southern Wisconsin. If the Davison's Thornless proves prolific, it will be a great accession to the Black Cap family. It is ten days earlier than Doolittle, and two weeks earlier than Miami, both of which bore the first this year with me. The Miami has done splendid.



OUTLINE OF SUMMER KING.

Why farmers do not raise enough of raspberries for the supply of their own table the year round I cannot see. If they would give one fourth of an acre of ground set to raspberries the same culture they would if planted to corn, it would pay them in health and enjoyment, in dollars and cents, more than any other one-fourth acre on their farm, and I think four to one the year after planting

"Can't get the plants?" do you say? The plants can be sent anywhere by mail in the United States, and the postage will not be one-half cent each.

With the same care and expense for the first fifteen years, more bushels of raspberries can be raised from the same amount of ground than of any other kind of fruit, and never an entire failure of a crop. Who does not like Rasp Jam, Rasp Pie, Raspberries canned, Raspberries the year round?

GEO. J. KELLOGG,
Belle Cottage Nurseries, Janesville, Wis.

THE leaves of the geranium are an excellent application for cuts, where the skin is rubbed off, and other wounds of that kind. One or two leaves must be bruised and applied to the part, and the cut will be cicatrized in a very short time.

For the Western Pomologist.

"Crab Apples for the North."

Since the settlement of the Northwest the question of hardy varieties of the apple has been one of absorbing interest to dwellers in that region. One of your contemporary horticultural editors has lately uttered his *ipse dixit* on that question. According to this savan all trees that "annually mature their wood growth" either naturally or by artificial means will be found able to "resist the most trying northern winter." His words are:

"What you need at the North is not crabs, but such varieties of the best apples as would mature their wood-growth early. If we were a resident of your State, (Minnesota) we should make the best selection we could, cultivate the trees highly, and at the same time force them to develop their termial buds at least six weeks before frost. In this way we should feel sure of rendering trees quite as hardy and fruitful as could be desired"

So important a discovery as this, it would seem, ought to make quite a sensation in the horticultural circles of the Northwest, were it based upon sufficient facts to warrant general confidence in a consummation so devoutly to be wished. But no facts are adduced. Theories are cheap, but experience is costly, assertions are easily made but without facts to back them are worthless.

Any variety that ripens its wood early is undoubtedly prepared to withstand as great a degree of cold as the natural hardiness of that species will allow it to do. But not all those kinds which ripen their wood earliest are found to be the hardiest.

The Early Harvest ripens its wood much earlier than the Ben Davis, yet it is by no means as hardy a tree. The Transcendent crab does not go to rest earlier than the Domine, yet they bear no comparison as to hardiness. These facts show that there is an inherent constitutional difference in the hardiness of varieties and of species, that does not altogether depend upon the period of ripening their growth. The fact that young nursery trees at the South are often destroyed when caught in an active state of growth by early frosts, has doubtless led to erroneous opinion among persons who have never visited the extreme North, that late growth was the sole cause of trees perishing in winter at the North. But such is not the sole cause. A climate where the mercury sometimes actually freezes is too severe for the endurance of any but the hardiest species of fruits. If it were true that artificial limitation of growth by root-pruning or otherwise, could render our tender apples hardy, then we might hope to grow the peach, the quince, and the heart cherries at the north by the same means, and probably it can be done with about the same degree of success. All such mutilation is but a temporary check to growth at the best, an increased stimulation is apt to ensue after the tree has recovered from the first effects. It can only be practiced and kept up at an immense cost, and can never be adopted by the masses. What the North needs is, not a system of doctoring for diseased and tender trees, which, if available, could only be applied by the favored few, but varieties of the apple that are specifically hardy enough to maintain health, vigor, and productiveness for the million. This the Siberian apples will do as far north as lake Superior, while but few varieties of the common apple will do so any where north of Chicago; and none of them north of the latitude of St. Paul.

To allege that any system of artificial surgery, whether it be root-pruning, patent 'Rejuvenator,' or other panacea, can so change the constitutional habit of a variety as to render it hardy beyond the natural limit of its species, is quixotic in the extreme, not to say downright humbuggerry. And yet such is precisely the position of the author of the article under view. A horticultural hobby that one may ride at all seasons in Egypt will never do to mount in Minnesota. It will need "iron clad" shoes in that section.

A feeble attempt is made to deny the superior hardiness of the improved Siberians, affording a fine chance for a display of those peculiar scientific allusions so characteristic of schollars who ignore every authority outside of themselves. A "slight change wrought" in the amelioration of a hardy species of fruit had "so enlarged the fruit germs" as to render it one of the most tender! "O this learning! what a thing it is.'

This attempt to decry the improved "crap apple for the North," is unique, being the first published opinion from any source of pretended authority, in opposition to them. In the Northwest the Siberian crabs have become a recognized necessity. In northern New England they are equally popular. Nearly every prominent horticulturist in the country, including Wilder, Manning, Thomas, Downing, Elliott, Warder, Sanders, and Fuller, have given them their unqualified recommendation, not only for the North, where they recognize their superior adaption, but also as a valuable addition to the list of culinary, desert, and fancy fruits for all sections. No voice has been raised against this unanimous decision except from one locality. This locality has been, singularly enough, surnamed after another region which once before attempted to monopolize the fruits of the country in order to supply their northern neighbors with corn at their own price. We have a class of orchardists located around the "corn cribs" of our modern Egypt who appear to, to be cursed with the same contemptible and narrow spirit. It crops out occasionly in efforts to ignore or abortive attempts at ridicule, or with grave scientific advice to check the rising popularity of the only class of fruits that can be grown in the extreme North.

We need be at no loss to divine the secret of this opposition from that quarter. The rapid multiplication of improved varieties of the Siberian crab, the growing supply of fruit and trees, and their evident value as evinced by the increasing demand and the prices paid for both, has alarmed a somewhat numerous class of fruit growers who have established themselves for the purpose of amassing fortunes by the sale of fruit to the Northwest, a region where they had predicted a perpetual famine of fruit. Not Joseph's coat of many colors caused such disquiet to his brethren as the hardy Siberian crabs have caused to these jealous Egyptian fruit growers, who have looked upon this great region as "the natural market for the finer fruits grown further south." The innocent younger brother who dared to dream that the stars of plenty bowed to him in the shape of tiny golden apples, till the whole North was furnished with bending boughs, even as her heavens are ablaze with the glowing Borealis, may be cast into the pit by the strong men of his tribe; yet the day may come when they in turn will make a pilgrimage for fruit to the district they now affect to despise.

Let us search a little further for the animus which prompts this persecution, which includes not alone the Siberian crabs, but all that class of fruits commonly called the "iron-clads," on account of their peculiar hardiness for the North and West. *Ad interim* committees have taken it upon them to privately persuade fruit culturists in northern Illinois and Iowa that it was for the their interest to discourage the cultivation of all such fruits as the Morello cherries, the native plums, the Ben Davis, and Dutchess apples, and the Wilson strawberry. These fruits they stigmatize "coarse, unworty of cultivation," and deride as the "lazy man's fruits." Perhaps the pioneers of the Northwest are lazier than our southern neighbors, but it is certain that without these fruits their pomology would be meager indeed. The motives of such advice can hardly be mistaken, coming from the mouthpieces of this would-be monopoly. Selfishness so gross and gigantic, is almost too serious to charge upon any class of men. We charitably admit the larger share to be unconscious, but on no other hypothesis than self-interest can we account for the facts above stated, which will be recognized as true by hundreds who have heard the statements quoted.

The varieties of improved Siberian apples are now so numerous that they are as wholly moved from the charge of being puffed for profit as any other class of fruits. They now enter into the staple trade of all our first class wholesale nurseries, east and west. The history of the Transcendent crab, alone, in the past fifteen years assures to the newer varieties which present better qualities and

extend the season during the winter and spring, a popularity which is not to be blasted by a breath, though blown by a public functionary, or wafted by a powerful print that will permit no reply. Such questions are settled by the masses, who, in pomology as in politics, acknowledge no masters. The recommendation to plant the best common apples at the North has been found too expensive a failure to gain favor with the old settlers. Tree peddlers will reap the principal advantage from such advice by swindling the recent immigrant with tender fruit trees.

The hardiness and productiveness of the Siberian apples are facts too well established to require vindication from the puerile attacks of sectional pseudo pomologists whose interests are bounded by those of their own section, and whose advice would rob millions of American citizens of the benefits of growing for themselves a class of fruit adapted to their region, and without which they must remain dependent upon their neighbors for a scanty supply.

The value of the Siberian apples, their quality and variety of uses, are as yet but slightly known. Those who are best acquainted with them believe them to possess qualities superior to any other fruits. 1st. Though small, they are undoubtedly the *richest* class of culinary fruits in existence. 2d They are the most cheaply grown. 3d. They are adapted to a wider range of territory than any known fruits.

It is the mission of the true horticulturist, instead of disparaging their trial, to redeem from obscurity, ridicule and misrepresentation a species of fruit which promise to prove so essential an element in the development of the materialwealth and civilization in all that vast belt of our continent which stretches from Maine to Alaska.

COSMO.

For the Western Pomologist.

Grapes at Blufton, Mo.

FRIEND M. M.—No doubt yourself and your readers like to know the varying of grapes as to their ripening in different latitudes. Here, Mary Ann, Hartford, Miles, Telegraph, Rogers Hybrid No. 3, and Brant are ripe. Rogers No. 4, Concord, Lindley, Rogers No. 36, Marion, Crevelling, Maxatawny nearly ripe. Brant seems to be about the earliest, and certainly promises well. With the exception of a slight scratch, (until quite ripe,) which it retains from one of its parents, it is about perfection in quality. Of course a larger bunch and berry would be desirable, but then we must take things as they are.

Massasoit Rogers No. 3 is in my opinion one of the best of all his hybrids, and is a most beautiful grape, a rose color. Wilder No. 4, is the best of the black ones. Rogers hybrid No. 36 has large bunches, very large berries, and nearly white.

Cornucopea is nearly ripe, and promises to exceed Brant in quality.

Antuchen is beautiful and promises to be of excellent quality. S. M.

Bluffton, Mo., August 13, 1870.

Summer Beurre D'Aremberg.

This is a new pear, raised by Thomas Rivers, a well known fruit grower of England. It was described last year in the *London Gardener's Chronicle* as a great acquisition. It has been this year fruited for the first time in this country by Mr. James H. Ricketts of

SUMMER BEURRE D'AREMBERG PEAR.

Newberg, N. Y. a practical amateur fruit grower, from whose enthusiasm and industry we may look forward for records of many new and rare novelties. It is to him, through the courtesy and good fellowship of our friend Charles Downing, that we are indebted for the specimen illustrated in our engraving and the description herewith.

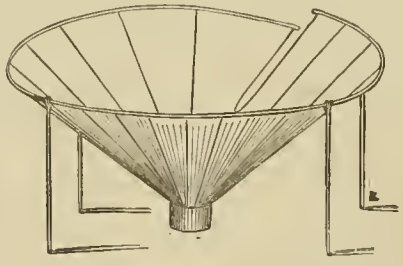
The tree is of course yet young, but it shows vigor, an upright growth, and has produced several specimens of fruit on a tree two years planted, giving promise to sustain its originator's saying that it is productive.

SUMMER BEURRE D'AREMBERG PEAR—OUTLINE.

The fruit is rather below medium size, is broad pyriform with an even surface. The color is a dull greenish yellow, much overspread and netted and traced with russet. The stalk is about three-fourth inches long, rather stout and curved, set in a shallow cavity, with a small raised side or tip. The calyx is nearly closed; basin acute, deep and strongly marked with furrows; flesh white, melting, slightly granulous, and slightly vinous, but with a rich, sweet aromatic juice that will class it as pomologically "very good to best." The core is medium; seed large, obovate oblong, light brown, with a dark line on edge. Season, September.—*Rural New Yorker.*

A Curculio Trap.

A correspondent of the *County Gentleman* in his peregrinations among the orchards around Geneva, among other objects of interest, found a trap with which the curculio is easily kept in subjection. It is a very simple contrivance as will be seen by the accompanying illustration. From the description, and the method of using it, we should suppose it to be the safest and most effectual way of trapping this enemy of the plum yet devised. The following description, with the illustration, will enable the reader to perfectly understand its construction and management:



"A large hoop some eight feet, or more less, in diameter, is made of round iron rod, three-eighths of an inch in size, with an opening on one side to receive the tree. It is closed, as soon as placed in position, by overlapping the two ends. A round hopper-shaped cloth is attached to the hoop, so that the lower part may be three feet down, or near the ground. At the bottom is secured a tin cup, and the insects, when jarred into hopper, roll down into the cup. If, in very warm weather any adhere to the cloth, a slight jar or blow loosens them. The cup should hold several quarts, so as to secure all that fall into it, including the dead blossoms, &c., which would soon fill it if too small. The insects will remain without attempting to escape, so long as it is kept in motion by passing from tree to tree. The four iron legs hang on the hoop, by being looped around it. They are sharp below, and are easily thrust into the soil to give firmness to the hopper. Two men carry and operate with it; and when no time is occupied in counting the curculios, the work may be done with great rapidity, or at the rate of fifty trees in ten minutes, and thousands have been caught in an hour. When done with, the legs are folded, the hopper flattened, and the machine hung up against the wall."

The Season and Fruits.

D. W. Adams, Waukon, Aug. 6th, writes us, "Drouth severe here through June and July, since then abundant rains and every thing growing magnificently; apples are nearly equal in quantity to last year—my own orchard 25 per cent better. Fruit rather small now but growing fast. Early Joe, Harvey, Fameuse, Codlin, Oldenburg, Sops of Wine, Ben Davis and Tallman sweet, very full. Saxton, Astrachan, Jewet's Red, Jonathan, Roman Stem, moderate crop. Golden Russett, Belleflower, Winesap, Northern Spy, etc., a failure. Cherries and pears, a failure. Grapes growing beautifully but bunches few and small, owing to imperfectly ripened wood last fall."

Lewis Ellsworth, Naperville, Ill., Aug 8th, writes:—"The drouth has and still is severe. Fruit crop fair, especially apples. Cherries not an average crop. All small fruits injured by extreme heat and drouth of the season.

I. Gould, Beaver Dam, Wis., writes Aug., 10th.—"The apple and pear crops short, plums a total failure except the wild ones; grapes a half crop; small fruits a failure; spring wheat 15 bushels to the acre, all No. 1. Potatoes nearly a failure by drouth and bug. Corn never better. Rye half crop. Buckwheat good.

For the Western Pomologist.

Horticulture in Crawford County.

Friend Miller.—Little can be said horticulturally about this part of "Old Master's Garden Patch." The very few bearing trees in this county are insufficient to determine from experience, whether raising the larger fruits—such as the apple and pear, will prove a success or otherwise. But one thing we *do* know, and that is, without the trees we cannot produce the fruit. I therefore say to all —*plant the trees and take care of them*, and ultimately some one will have the apple, if not the pear. Trees planted last spring and properly taken care of have done well, notwithstanding the drouth so severe in some parts of the State. I advise my friends on the "slope" to plant *small trees*, plant them *deep*, and if you can make no better use of your pruning knife, give it to some little boy, if he does whittle your cherries. Better so than to use it on your trees. If trees *must* be pruned, do it with the thumb and finger, or with the hand by pinching, or rubbing off the surplus buds as they appear.

Cherries do well here. Strawberries and goosberries, both native and cultivated, have given good crops, notwithstanding the dry season. Newly planted grape vines have made but little growth, but older vines large enough to bear have fruited well. From what has been done so far with the small fruits about here, I think they will succeed well. Apples have not been sufficiently tested to tell whether they will be a success.

S. J. Comfort.

Dennison, Crawford Co.

For the Western Pomologist.

Peregrinations.

Friend Miller.—On a recent visit to Council Bluffs, I of course did not fail to observe closely the adaptability of that location, soil, climate, &c., to the successful growth of fruits; and hailing, as I did, from one of the most successful fruit-growing regions of the State, I must say that I was pained to see the laxity manifested upon the subject of fruit-growing about the Bluffs. Indeed, most of the citizens have got the idea that the standard fruits generally cannot be grown there successfully, and consequently have taken to planting the Russian and Siberian Crabs quite largely, which I regard as a very poor *substitute* for fruit.

While a the Bluffs I visited the orchard of Mr. Sylvester, containing about 50 trees, most of which were about 20 years old, and notwithstanding the fact that this is generally considered an unfruitful season at the West, many of these trees were well loaded with fair sized fruit, and nearly all had some fruit on them, and *they were not crabs either*. He informed me that last year he sold a surplus of 75 bushels of apples from his orchard.

While at the Bluffs, I was picked up by Mr. J. W. Damon, and taken out to his fruit lot, which consists of six acres, on which stands his house and out-buildings, occupying probably an acre or more, and the residue of his ground was devoted to fruit and vegetable culture. Mr. D. says he commenced there six years ago, and from the amount of stuff which he has on his lot, and from the high state of cultivation in which I found it, you may set him down as one of your practical men, who thoroughly understands what he is doing, for I found here just as thrifty apple and pear trees as I have ever found anywhere, and with a good showing of fruit on the apple trees too. And I never saw thriftier, healthier grape vines than here, and this gentleman had a good supply of them too, with a plentiful fruitage. He also had strawberries, raspberries, and blackberries in abundance, and of many kinds, but cannot mention them all here.

I said that Mr. Damon was a practical man, and you will think so when I mention that in one season he sold from a small bed of strawberries $400 worth of fruit, and this bed did not exceed half an acre in extent, and probably less; and that the same season he sold $900 worth of sweet potatoes from another small plat of his ground. But I must forbear lest I be accused of "drawing the long bow."

I also visited the grounds of my fellow-nurseryman, H. C. Raymond, but as you, Mr. Editor, had just preceded me there, I will not anticipate anything that you may have to say about him. I will just remark, however, that while viewing his tasteful display of flowers, &c., that I could not help thinking "what a pity it is that he has no companion to share the joys of this fine scenery!"

Keosauqua, Iowa. Ira Philips.

That's just what we told him.—[Ed.

Reply to Mr. Suel Foster.

It is our desire to make the Pomologist a correct medium of thought, and to do so freely discuss the opinions and principles of others in a spirit of candor and kindness.

We cannot expect the various minds to fully agree when placed under different circumstances, but when there is a desire to impart and receive information there is a tendency to agree and be united.

These few thoughts have been suggested by the tone and spirit of Mr. Foster's article in August number of the Pomologist, in reply to our article asking him to make a correct quotation.

He says, "I am a little surprised to find in July No. of the Pomologist so severe a rebuke for my cautioning people against depending on seedlings for valuable varieties of apples."

Now, Mr. Foster, we do not like to be under the necessity of correcting you again. We do sincerely hope you may be more guarded and particular in what you say. In our first article we did not even there rebuke you for what you said about *seedlings* in general, but what you said about the *Kansas Queen* in particular; and in the July number we did refer to seedlings in connection with you but called your attention to the *misquotation*.

We consider it always more manly to acknowledge an error than attempt to try to justify ourselves in committing it.

But Mr. Foster, not yet satisfied, asks us presumptuously "*who is the author*" of the following sentence: "The tree is so identical in all of its habits with the Ben Davis which is a sufficient guaranty of being hardy, productive and profitable without further comment from me." And then says: "I can find no name to father this sentence." "Is it not reasonable for me to suppose he was the author." "But what difference does it make who the author was, *it was the subject* and not the author that I was upon."

Now what does this all mean? simply that if he has not given the exact quotation or author, he has given its substance and correct meaning. We are the author of the sentence and believe we understand its substance and meaning, and had Mr. Foster quoted it correctly we would not have had anything to say; but he now asks "what difference does it make?" Can it be possible that he cannot see any difference after what we said in the May number of the Pomologist which reads thus: "It is not our object to prove that it was certainly a seedling from the Ben Davis and therefore hardy, but we compared the tree to that variety because it appeared so nearly like it in all its habits, health, vigor, hardiness, form, productiveness and color; the Ben Davis tree being a well recognized standard of perfection."

Is there no difference in the meaning of

the following sentences? You say, "It being a seedling of the Ben Davis is a sufficient guaranty," &c. We say, "The tree is so identical in all its habits with the Ben Davis which is a sufficient guaranty," &c. You make the hardiness of the tree depend upon its being a seedling of the *Ben Davis.*

We do not make the hardiness depend upon its being a seedling of any particular variety, and might substitute in the place of Ben Davis, Winesap, Oldenburg or any other well known hardy variety, that the Kansas Queen would be an exact type of. We named Ben Davis, not because the Kansas Queen is a seedling of it, but because the Ben Davis is a well known and recognized hardy tree, we therefore compared it to that variety. In our description of the Kansas Queen, we wished to be concise and expressed in definite language that it was "*healthy and hardy,*" but as an additional evidence, we wished to show that it was an exact type of the Ben Davis, which would be a sufficient guaranty to those who knew that variety, without any further comment by us. We hope this is explicit and sufficient upon this subject.

J. S., Asst. ed.

Blight and Red Rust.

According to a correspondent of the *Country Gentleman*, the blight and red rust are making sad work among the apple and pear trees in the region of Champaign, Ill. If this writer is the same one who wrote not long since from the same locality, limiting the lives of fruit trees upon prairie soil to ten years or so, no great apprehension need be felt from any thing he may have to say about blight, rust, or any other calamity. He says:

"Blight is developing in dimensions into a public calamity. Half the pear trees are carying a black flag, and nearly half the apple trees a brown one, both showing death or danger behind. Few orchards either of pears or apples escape. The attack is so general, that nobody has an oportunity of bragging over his neighbor, and it is this circumstance, I conclude, which keeps almost every one silent on the matter. South for eighty miles, eye-witnesses tell me, it is not only general, but almost universal. Half the pear trees are dead already, but only a small proportion of the apple trees, and only those of the latest set in orchards. Nobody comes forward to explain the cause, and nobody that I know of shows how to cure the disease. I have made up my mind that we shall lose half or three-quarters of our pear trees, but I cannot yet believe it will be fatal to a majority of the apple trees. The blight seems to be contagious to a surprising degree, the virus seemingly being carried by the wind, birds or insects. Where orchards connected with nurseries are attached the blight fastens on young trees and old ones alike, and by young nursery stock, has been, or may be spread over the country, as well as by a thousand other ways and means. It is a grave matter and deserves the immediate attention of those public officers who are salaried to attend to such things.

In addition to the fruit tree blight, the *red rust* has appeared on the black cap raspberries, but only here and there; and on the blackberry, but rarely. Houghton Seedling Gooseberry, hitherto always yielding great crops, when properly thinned, is nearly barren this season, though blooming full. It appears to be going the away common to the imported kinds; the leaves are drying up and the whole plant looking weak and sickly. Currants remain healthy and grapes too, so far as I have see, or learned; but it is not quite time for the mildew and grape rot. We shall have to make a laborious investigatiou of the causes which are destroying our fruit trees and shrubs and hereafter conduct our fruit culture with scientitic care and method, or fruits will become as scarce here as they were before the prairies were cultivated.

The Pine Apple.

There is perhaps no production of the tropics which is so generally and deservedly esteemed by the people of the North as the pineapple; yet of uone have they such vague ideas as to its manner of growth. Not until frequently have we heard it expressed as being the fruit of a tree; associating it with the cone-bearing trees of own country. The piue apple plant (*Ananassa sativa*) is a native of tropical America, growing wild iu the forests, but is also largely cultivated in those regions as well as to some considerable extent in the West Indies and on the eastern continent.

It has fifteen or more long, serrated, ridged, sharp-poiuted leaves springing from the root, resembling in its general aspect the century plant, but much smaller in size. In the center of this cluster of thick, succulent leaves, springs up a short stalk bearing a spike of beautiful flowers, which in time produces a single pine apple. On the summit of the fruit is a tuft of small leaves, capable of becoming a new plant, which together with suckers, are the means by which it is propagated, as the cultivated plant seldom produces seeds. It flourishes best in a moist and warm climate, but is able to survive a long drouth and extreme heat.

There are several varieties of the pine apple, differing in their leaves being more or less spiny ou their edges, and in the shape and color of the fruit. Great care is requisite in its cultivation, otherwise it will become coarse and fibrous, with but little sweetness. Nothing can surpass the rich and delicate flavor of the pine apple which has been properly grown, or of the wild fruit of the forest, which we always find equal, if not superior, to the cultivated ones.

A word as to the manuer of preparing a pine apple for eating, may not be out of place here. Let the rough exterior first be removed to a sufficient depth, then slice the fruit longitudinally with the core, and not across the hard center as is generally done with us. As soon should an ear of corn be divided in sections when the kernels must be pulled from the cob, as a pine apple across the core, instead of nicely slicing the fruit from its adherents. The deliciousness of a pine apple when freshly picked from the plant and prepared iu the above manner cannot be surpassed.—*Cor. Scientific Amer.*

A correspondent of the *Western Farmer* says that he dusted one-fourth acre of potatoes infested with bugs, with Paris green, and has not seen one since. He put half a pound of the green into an old salt sack, and gave this a slight shake over the vines.

Peaches in Southern Illinois.—The *Journal of Agriculture* says the peach crop at Centralia promises to be the largest ever raised there. Three years ago 300,000 boxes were shipped from that region, and it is estimated that the sum total will reach as high as 400,000 this year.

Flowering Shrubs.

A selection may be made from those that will give flowers nearly all the season. Among *Wigelias* what a diversity of color—pure white, deep and light rose, and almost purple! *Deutzias*, greatly improved by the introduction of several new varieties, some producing flowers equal to any of the high-priced greenhouse plants. *Syringas* or *Lilacs* as they are more commonly called; what a host of these now to select from! A catalogue, before us, describes no less than thirty-five kinds, embracing every variety of color, from pure white to deep purple, and extending over a long period of flowering. We will omit several very handsome things in the way of these, and come along to the *Spiræas*, now almost an endless variety and greatly improved by the introduction of many new ones. These begin to flower early in the season and are generally the last to leave us in the Fall. They embrace almost every shade of color, and a great variety of form. All are very beautiful, and ought to be in every garden no matter how large or small. They grow in almost any soil, and need but little care and attention. We might continue to enumerate many more of this class of shrubs but, for many of our readers, we may have enough. Those who have plenty of room to plant, and means to obtain them, will find an endless variety in any respectable Nurseryman's catalogue.

We are not penning these few lines for any professional man—they are for our farmer readers—for those who live far away from where these things are to be had in abundance—simply as a few suggestions to help them, as it were, to fix up and beautify their homes, and make them attractive. Many have but little idea how much a few flowers and flowering shrubs will do for their homes. In passing along the highway it is easy to point out the man of taste, for around his home you will see fruits and flowers in abundance.—*T. B. J., Experimental Farm Journal.*

Flower Seed in Pots.

A few general rules are applicable to all seeds sown in pots.

1. All pots and pans used for seed sowing should be well drained in the ordinary way and, as fine soil is much employed in seed sowing, a layer of dry moss or of roughish soil should separate the drainage and the soil above.

2. The soil on the top-surface of all pots, pans, etc., used for seed-sowing, should be finely pulverized by sifting.

3. Good sandy loam may be taken as the basis of all soils used for seed-growing, but it should always have at least half its bulk of finely pulverized leaf mould, peat or some vegetable soil in it, and fully one-fourth of the whole should be sand.

4. The soil should be made perfectly fine and firm in the pots, particularly in the case of small seeds.

5. All seeds sown in pots, frames or houses reqvire shading during sunshine, and it is particularly necessary for the smaller seeds on the surface.

Pears for Western Michigan.—At the late Convention of Fruit Growers for Western Michigan, the following pears were recommended as best adapted to that region: Bartlett, Bloodgood, Seckel, Flemish Beauty, Vicar of Winkfield, Sheldon, Howell, Lawrence, Clapp's favorite.

Increase of Insects.—At a late meeting of the Alton, (Ill.) Horticultural Society, it was said that each year was proving it true "as we increase the products the insects increase."

For the Western Pomologist.

The Culture of Trees—Cutting Back.

The criticisms of a novice, if based on rationalism rather than empyricism, are more valuable to a journal of horticultural literature than the maxims of experts accessible in all text books, and sometimes the product of ignorance or accident; at all events they may elicit the truth in relation to the actual wants of beginners, for their probable failures or misconceptions of the usual teaching.

The province of such a journal is not merely to reiterate the established laws of vegetable physiology, systematically if possible, so as to prevent the repetition of useless experiments; but also criticise the old *habits* of horticulture that are not based on satisfactory reasons. The whistle may be desirable, but too expensive, and the expense *may not be recognized.* This above all others is the besetting sin in agriculture. We recently bought fifty dwarf pear trees from "the old Rochester nurseries," because we received the impression ten years since that fruit trees from the northwest are healthier and more vigorous, and our experience since has not only confirmed this, but also the fact that they fruit much sooner, and earlier in the season. I was instructed to cut back all the banches immediately upon planting, but *my science* of physiology forbid this, and I ventured to adopt my own plan as usual—although no one feels more dependent on "experience" and modest in questioning or believing in the result if successful, when it deviates therefrom, however rational the deviation.

1st. The vitality of a tree cannot be measured indeed no one can determine the presence of vitality, or whether only one grain, or every grain in a bushel of wheat shall germinate; nevertheless, Tyndale actually caused the British savants to swallow the idea that he could build a chicken, knowing the organic laws of the egg; forgetting that vitality is pre-Adamite, and differs from physiology, which is merely the *average* result of life, and like phrenology, unreliable, as "thou canst not even make one hair, nor its color."

2d. The amputation of all the limbs *at the same time*, superadded to the schock of transportation for several hundred miles during as many weeks, (although in this case the packing was perfection itself as usual, and the trees putting forth their blanched sprouts in the temperature of May,) presented to my mind the idea that two errors must usually be encountered and surmounted by fruit trees, and especially dwarf pears; therefore if my reasons are accepted, they may at least invite the review of some other veteran, but certainly not a more successful nor enthusiastic grower of the choicest fruit than Moulson.

3d. The manifest relation of the branches, (or rather switches say 1-4 inch in diameter,) to the stump which was one inch by twenty-four, with corresponding roots, indicated rather a preservation of the relation of top and roots, if possible, and suggested the other error of a similar character, which may have been made when the tree was cut back and transplanted; at all events I determined to cut back one half of only the central branches, and reserve the sprouts at the tips of the rest as lungs to support the integrity of the sap until the dormant buds of the docked limbs near their base had put forth leaves and sprouts. Then, subsequently, when the tree was well rooted I cut back nearly all of the lateral branches, and tied a twine tightly aronnd the rest so as to strangulate them gradually as they grew, and insure a few pears therefrom next year.

I wish to advance the idea that the vitality or actual existence, and the health—moreover the duration of life in all vegetables is influenced, not only by cultivation, but specially by shocks imposed as above, and I hope to illustrate this idea in other relations, backed by some success in its development practically.

4th. The other error referred to is the sudden destruction of the proper relation between the roots and tops of dwarf pears by severely docking them, (as these have been cut to a stump twelve months since.) This must result in the disuse of a large part of the quince root, and not only impairs its vitality, but the vitality of the year; whereas by strangulation, as suggested, a gradual change, and more perfect reparation would occur without shock.

D. Stewart M. D.

Port Penn, Del.

For the Western Pomologist.

Tomatoes and Beans.

Ed. Western Pomologist.—I must congratulate you on the fine style of getting up the Western Pomologist, as well as the excellence of the articles it contains. I have read the numbers with both pleasure and profit, and look for the monthly visit of the Western Pomologist with no ordinary anxiety and interest. It will give me great pleasure to contribute anything which I may deem of use to those of your readers who desire to hear plain, practical remarks from one who makes no pretensions to much scientific knowledge in matters pertaining to Horticulture, but in what he says, gives nearly his daily experience, and what comes under his own personal observation—and I begin with

tomatoes and beans.

Next to potatoes, perhaps, these two articles are as much, if not more used in their season than almost any other vegetables now grown. Their healthful and nutritious qualities are now so well established and so universally known from the palace to the cottage garden, that it may not be amiss to say a word with regard to the kinds of each to plant. I have the present season grown a variety of tomatoes, all of famous reputation, among which were the Gen. Grant, Maupy's Superior, Perfected, Mammoth, Kay's Extra Early, Tilden, etc., and I can say that so far as my experience goes, the last, viz: the Tilden, is the only tomatoe that I shall ever plant hereafter. I consider it in all respects superior to any other that I have grown. It is amply large, (I have them six inches in diameter) of a beautiful scarlet color, perfectly smooth, of convex or biscuit-shape solid and ripens all over at the same time. Whereas, the other kinds are of great mammoth size, ugly and misshapen, wrinkled, knobby and knotty, ripening by halves and rotting badly and prematurely, owing to their great weight, and clustering habit of growth. My experience with

beans

has resulted in the choice of the *German Wax* as a bush bean and the *Giant Wax* as a corn or pole bean. I have grown half a dozen other sorts, some tolerably good and some very bad; but I see no use in planting merely for the sake of variety unless all are alike good. The two above mentioned are perfectly stringless, which I have never seen in any others, boiling quickly and tender, and yielding very profuse crops. When in proper eating order they are of a cream color. The only objection to them as a dry bean is their color, which, when dry, is black, or liver-colored. This is only a matter of fancy, however, as it does not detract from their richness. To my county friends then, I say, plant no other tomatoes but the Tilden, nor no other beans but the German Wax as a bush bean, and the Giant Wax as a corn or pole bean. Of course, I do not exclude the Lima Bean—which belongs to another category, and is the perfection of the bean tribe. As a bean of commerce, the Royal Dwarf and Rice beans are superior to all others. They do not, however, belong to the garden.

I. G. Mask.

Moorefield, West Virginia.

Remarks—We have grown the *Giant Wax* bean, and can fully endorse all our correspondent says of it. The *German Wax* we have not seen.

The Japan Plum.—Gen. Nicholson of New Orleans writes to the *American Institute Farmers' Club* concerning this fruit: "It has been cultivated several years near New Orleans; in mild winters immense crops are produced; the trees flower in the fall and ripen their fruit in February and March; they will not grow from cuttings, but only from seed. I planted some seed twelve years ago, and the trees have been bearing about six years; they will occasionally bear in four to five years. The tree is a fine evergreen, and is cultivated as such, independent of its fruit.

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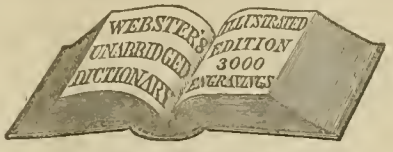

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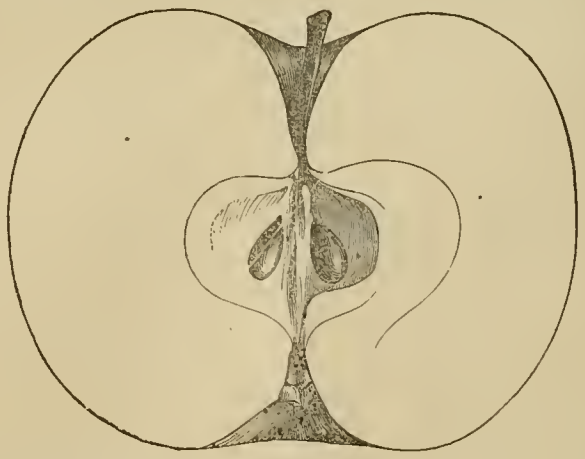

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Vol. I. DES MOINES, IOWA; LEAVENWORTH, KANSAS, OCTOBER, 1870. No. 10

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For the Western Pomologist.

The Lawver Apple—More of its History.

In the Sept. No. of the POMOLOGIST, its Kansas editor criticises somewhat sharply, the history of this noble fruit. Sharp, shrewd, keen fellows—those Kansans who have given birth to Kansas fame. Like the fond mother they see nothing in other children to be compared to her darlings. We often smile at this jealous love of the Kansans. Well, they are workers! It would have puzzled a Philadelphia lawyer to have worked up such an apparent, inconsistent history of this apple!

Now, I never wrote an article for the Missouri Agricultural Report for 1868. In 1867 I had written to some private friends who had asked for a history of this apple, that I had just visited the original tree on the farm of Mr. Burichter, a neighbor of mine, who said—"some 15 years ago I went down to Liberty to sell butter, and the groceryman gave me a big apple, like the Missouri Superior. My wife said, 'plant the seed;' it was in April. I planted it beside a stump—you can see the roots there now. I think it bore in 5 years from the seed. Once it got broke down, but for 7 or 8 years it has borne some every year. I sold the fruit last year for $4.00 per bushel in Kansas City."

Extracts from what I wrote were published, and I suppose by the time they were coppied into the Agricultural Report, Mr. Burichter's name, and the quotation marks were left out. My particular attention was engrossed in testing the qualities of the apple, rather than to these minor facts. I cannot be responsible for changes others may make.

I bought the cions and several bushels of apples, and sent them to many Pomologists over the Union, to have them examined and tested. I have had plates painted, framed and sent to leading men and societies, in order to bring into notice so valuable a fruit; so far the tree does well. Again I wrote in my publication on the Fruits of Western Missouri, that the Lawver originated here, (meaning in Western Missouri). The next discrepancy I never dreampt of till the assistant editor pointed it out. In the fall of 1868, I wrote the article in which I said it was discovered last year. Well, the publication was delayed to the beginning of 1869, in which case it should have said—the year before last, for it was in 1867 it was discovered and brought into notice. Again he does me injustice in not publishing the different report which he says I made in 1870. I will here give it in full and let it speak for itself.

Lawver originated on the farm of Mr. Burichter, near Parkville, Mo., and named Lawver as a compliment to A. M. Lawver, Esq., of Southpass, Ill., for his industry in collecting new Southern and Western fruits. The *Prairie Farmer* says: "It is one of the most beautiful apples we have ever seen." Judge Norton says: "No description or painting can equal the reality." Our most prominent fruit growers are unanimous in awarding it the standard of beauty and flavor. Dr. Warder speaks of it as "best of its season." It sold last year for double the price of any other apple. Fruit large, dark red, very smooth and glossy; flesh white, sometimes, slightly stained with red; crisp, sprightly aromatic, rich cranberry flavor; popular with the train boys, sells better than oranges. Tree productive, thrifty and hardy, and of fine proportions—scarce.

GEO. S. PARKS.

Parksville, Mo., Sept. 13, 1870.

For the Western Pomologist:

Growls From Pottawattamie.—The Siberians.

ED. POMOLOGIST:—Give me a chance to poke that modern deciple of that wonderful Egyptian of whom "Cosmo" so feelingly speaks in the September No. He migrates; he rests at Council Bluffs.

Being a follower of the Goddess Pomona, he seeks congenial spirits. His heart is made sad by the discovery that but few are in the right path, and the taste of those few so depraved that they were planting largely of Russian and Siberian Crabs. Pray, friend Phillips, what do you mean by Russian Crabs? Is it that lot of hash consisting of all sorts of crabs, seedlings, and trash that those "Blessings" have so kindly been distributing in this part of the country, and who, by some *hocus pocus* have succeeded in making our honest people believe they were laboring for public weal, to the detriment of their weasel-skins when they charged them only one dollar each.?

If you mean the Tetofsky apple I can assure you they are almost as scarce as hens teeth in this region. You say they are "a very poor *substitute* for fruit." Do you call them nuts or vegetables? We call them good fruit here, especially when we lack for something extra fine. For the last two years we Bluffites have been sending crabs to Burlington, getting four dollars per bushel. Is this sending coals to Newcastle? Or, perhaps they are buying them merely to show the "old settlers" about there, how depraved our tastes are. Mr. Phillips says that our "Mr. J. W. Damon is a practical man, and thoroughly understands his business." Facts; but this same practical man is planting crabs by the hundreds, his neighbors in less quantities; and why? I can tell you why. It is because they *bring the fruit.* They are as sure to bear as an early Richmond Cherry. Thrown into the ground, stuck in the sod, bruised, broken, forsaken, (except at apple time,) and still they bear; and despised though it may be to some, it is never left alone in its glory to perish. When we fail to be able to tickle our palate with Gages and Golden drops, do we not seek our native plums and call them first rate? When the Oxheart fails us do we not call the Early Richmond A, No. 1? Let us be thankful for what we have, ever striving for the better. What a wonderful improvement in Siberian crabs has been wrought in a few years past. With like progress for two or three years! and some *rara avis* will appear, of size like Mammoth Pippins, at fabulous prices, putting the potato mania in the shade; and the whole crowd of crab ridiculers will run to see the great prodigy, and eat it too, to please their friends.

Council Bluffs. H. C. RAYMOND.

Fair of the Iowa State Hortic'l Society.

The Fourth Annual Fair of the Iowa State Horticultural Society was held at Keokuk, Sept. 12th to 16th.

ADDRESS OF PRESIDENT MATHEWS.

Ladies and Gentlemen of the Iowa State Horticultural Society:

Such periodical gatherings or social feasts of the agriculturist, the horticulturist and the fruit culturist, as this, to celebrate the varied annual returns of their toils, are not in the inventions of yesterday nor practice of modern times only, but so ancient as to be almost coeval with the productions of grains, vegetables, fruits and flowers, upon the earth. Indeed their antiquity has rendered them well nigh sacred to the great laboring classes who compose the bone and sinew, the essential foundation and support of all countries.

While agriculture, horticulture and pomology have their separate spheres and modes of operation, yet the important interests they severally represent are so inseparably connected, interwoven and entwined together, that like the vines which have grown and extended their branches and twisted their numerous tendrils around the limbs and foliage of adjacent trees, their separation is impossible without inflicting serious injury to all. For this reason it is fortunate that the Iowa State Agricultural and Horticultural Societies have taken a correct view of the matter and united their periodical fairs or exhibitions of their several productions.

While I am quite sure that one of these autumnal festivals in the West, must be seen to be appreciated, and therefore I would not undertake a description; I cannot in this connection refrain from making a quotation from one of our best American writers and naturalists, whose graphic delineation of what a New England fair was thirty years ago, may not be uninteresting by way of comparison with the present times in the "FAR WEST." He says:

"As I pass along the streets of our village on the day of our annual show, where it usually happens that the leaves of the elms and button woods begin first to strew the ground under the breath of the October wind, the lively spirit in their sap seems to mount as high as any ploughboy's let loose on that day; and they bear my thoughts away to the rustling woods where the trees are preparing for their winter campaign. This autumnal festival where men are gathered in crowds in the streets as regularly and by as natural a law as the leaves cluster and rustle by the wayside, is naturally associated in my mind with the fall of the year.

"The low of the cattle in the streets sounds like a hoarse symphony or running bass to the rustling of the leaves. The wind goes hurrying down the country gleaning every loose straw that is left in the field, while every farm-lad, too, appears to send before it. Having donned his best pea-jacket and pepper-salt waistcoat, his unbent trousers, outstanding rigging of duck, or kerseymere, or corduroy and his furry hat withal; to country fairs and cattle shows, to that rome among the villages where the treasures of the year are gathered.

"All the lands over they go leaping the fences with their tough, idle palms, which never learned to hang by their sides, amid the low of calves and the bleating of sheep,

"From steep pine bearing mountains to the plain."

"I love these sons of earth, every mother's son of them, with their great hearty hearts rushing tumultuously in herds from spectacle to spectacle, as if fearful lest there should not be time between run and run to see them all.

"Wise nature's darlings, they live in the world,
Perplexing not themselves how it is hurled."

Running hither and thither with appetites for the coarse pastimes of the day, now with boisterous speed to the inspired negro in whose larynx the melodies of all Congo and Guinea coast have broken loose into our streets; now to see the procession of a hundred yoke of oxen, all as august as Osiris or the droves of neat cattle and milch cows as unspotted as Iris or Jo, such as had no love for nature at all,

"Came lovers home from the great festival."

"They may bring their fattest cattle and richest fruits to the fair, but they are all eclipsed by the show of men. These are stirring autumn days, when men sweep by in crowds amid the rustle of leaves like migrating finches. This is the true harvest of the year, when the air is but the breath of men and the rustling leaves is as the trampling of the crowd.

"We read now-a-days of the ancient festivals, games and processions of the Greeks and Estrucans with a little incredulity, or at least with little sympathy; but how natural and impressible in every people is some hearty greeting of nature. The Corybantes, the Bachanites, the rude primitive tragedians, with their procession and great song, and the whole paraphernalia of Panathenaca, which appear so antiquated and peculiar, have their parallel now. It is worth while to see the country's people, how they pour into town; the sober farmer folks now all agog, their very shirt and coat collars pointing forward—collars as broad as if they had put their shirts on wrong end upward, for the fashions always tend to superfluity, and with an unusual springiness in their gait, jabbering earnestly to one another.

"The more supple vagabond, too, is sure to appear on the least rumor of such a gathering, and the next day to disappear and go into his hole like the seventeen year locusts, in an ever shabby coat, though finer than the farmer's best, yet never dressed, come to see the sport and have a hand in what is going on; to know "what's the row," if there is any; to be where some men are drunk, some horse race, some cockerel's fight, anxious to be shaking props under a table, and above all to see the "striped pig." He is especially the creature of the occasion. He empties both his pockets and his character in the stream and swims in such a day. He dearly loves the social slush. There is no reserve of soberness in him.

"I love to see the herd of men feeding heartily on coarse and succulent pleasures, as cattle on the husks and stalks of vegetables. There are many crooked and crabbed specimens of humanity among them, run all to thorn and rind, like the third chestnut in the burr, so that you wonder to see some heads wear a whole hat; yet fear not that the race will fail or waver in them; like crabs that grow in hedges, they furnish the stocks of sweet and thrifty fruits still.

"This is nature recruited from age to age, while the fair and palatable varieties die out and have their period.

"This is that mankind."

Our author, with all his classical lore and deep thought, could not ken the future even to the present day. He doubtless gives a true delineation of what a Fair was in Yankeedom thirty years ago. But while we may recognize many points of resemblance, it would compare but indifferently with one of our immense Mississippi Valley gatherings of the present time. Those were simply the juvenile days of "Yankee Doodle." These are the maturer times of Western progress, marching to the tune of "Tramp, tramp, tramp."

None can fail to see the onward and upward tendency, the unprecedented advance of the "Great West" in agriculture and everything which has a tendency to develop our untold resources, and to promote the happiness and independence of the masses of our people. To-day we pass along one of our railroads and find it one vast stretch of unsettled prairie. In a few months are towns of several hundred inhabitants strung along the same line of railway, and the whole country dotted and covered over with houses and barns and cultivated fields, presenting at first to a contemplative mind more of the magical than of the real, as though these huge freighted trains which pass and repass daily and hourly along our ever extending railroad lines, had the inherent power of throwing off and scattering for miles on each side of their passage, inhabitants, houses, barns, fences, fields of grain, fruits and other productions, just as the sparks are thrown off from the fire which propels the glittering locomotives, or like the thousands of *nebula* which are seen with improved magnifies to-day, but which were undiscovered on yesterday. Such in fact is the unheard of rapidity with which Iowa is being populated and her improvements advancing, that none can realize the true measure of her progress, but such as are in a situation to see for themselves. But an additional feature of real interest to our society, is, that the advancement in fruit growing is fully equal to the general prosperity, or the rapid onward movement in any other industrial department.

New orchards, vine-yards and fruit gardens are annually coming into bearing, and thousands of trees, vines and small fruits being planted; and still the demand is on the increase, far beyond the supply in our own State; especially is this so in regard to apple and cherry trees.

In my efforts last spring for the commencement of an "*iron-clad*" orchard on the State Agricultural Farm, there were several kinds of apples, standard sorts of which I could not obtain three year old trees, either in Iowa or any other State, from reliable establishments with which I am acquainted.

From my experience, *then*, and information since, by general correspondence, I am satisfied that there is a great deficiency, not only in Iowa, but in all other States, in model trees, of approved varieties for Western planting.

I say "model trees," because next to hardiness and fruitfulness, it is essential that trees should be trained by nursery culture in uniform and symmetrical shape. There is as much due to system and neatness in nursery productions as in anything else. Men of ordinary taste now-a days do not go to nurseries to buy brush merely, but to purchase handsome and thrifty stock; the trees as nearly uniform in size and shape as different sorts can be grown by proper training. I am aware that some differ with me in this, but I maintain that a farm is as much benefitted at least, by model improvements and fixtures as our dwellings inside, and why not cultivate taste in one as well as in the other. I admit that a bureau or a clothes press with a rough and unfinished exterior, not even jack-planed, might hold and preserve the silks, linens and calicoes and other family habiliments as securely as if tastefully veneered and subjected to the highest polish; but how many can you find who will not purchase the latter if they have the means of doing so? And the reason is surely much stronger in the selection of trees than in parlor and dining room appendages; for an orchard is a permanent improvement or fixture.

If wisely selected and skillfully inaugurated it may last for two or three generations, and for years become more valuable. On the contrary, household goods will constantly detriorate, and when half worn out may be sold for their depreciated value and new articles purchased; but remember, you cannot purchase a *new bearing orchard.*

To grow a good orchard, is a ten or twelve years' job; so you had better start right.

If, when on a journey you miss your road and travel ten or fifteen miles in a wrong direction, possibly you can find a way across to the one you should have taken, and not be obliged to retrace your steps to where you began to diverge. But not so in orcharding.

If you have planted either unhealthy or deformed stocks, you have no remedy but to dig them out, and, as the lawyers say, commence "*de novo.*" Go back to the precise point where you started, and be assured a disappointment and loss of this kind cannot be estimated in dollars and cents.

While in most parts of Iowa this year we have to admit a signal falling off in our general fruit crop, by the combined causes of a sudden and severe freeze in the latter part of October, 1869, and a late frost during the spring of this year, we have reason still to rejoice, and ought to be thankful to the Great Dispenser of all our multiplied blessings, for a season of general health and prosperity, and for the fact that in no part of our country are failures of the fruit crop less frequent than in Iowa.

The fall freeze was extraordinary and unaccountable in its effects. It had no peculiar manner of doing its work. The most hardy evergreens, fruit and ornamental trees known in the Western culture, were as liable to be badly or even fatally injured as the tenderest kinds. The American Balsam, or Silver Fir, Hemlock, White Pine, American Arborvitae, Cedar, &c., were among the victims. The European Balsam Fir, (Balsamea) European Silver Fir, (Pectinata,) Blue Spruce of the French, (Abies Coerulea,) Austrian Pine, Siberian Arborvitae, and some others were not injured in the least. One large tree of European Larch, in my grounds, was badly hurt. Many hardy kinds of apple, such as Ben Davis, were affected severely, and in other instances entirely killed. Sometimes the top of the tree betokened the work of the destroyer and in other instances only the stock near the ground; each particular case undoubtedly depending upon the condition of the sap current when the freeze came on.

In regard to this *fall freeze*, it is consolatory to know that such a mortality among ever-

greens and other extremely hardy trees never occurred in this country before, and therefore will not be likely to happen very soon again. Nurserymen, then, need not be discouraged; nor is there any reasonabble ground for discouragement to those who wish to plant orchards.

Sometimes failures occur in crops of grain and every agricultural production, and yet farmers persevere and find out that, all things considered, we have one of the finest farming countries in the world. So shall we discover that, although subject to some severe reverses, such as are experienced in all human affairs, Iowa is one of the best fruit States in the country. I mean for such kinds as can be grown this far north and east of the Rocky Mountains. Only let every man engaged in propagating trees and small fruits for sale solemnly resolve that nothing shall be sent out but what is perfectly hardy and prolific in the locality where it is to be planted, and very soon all who buy fruit trees, vines, etc., etc., can have an abundance. Do not be alarmed about the sale of your stock amidst our rapidly increasing population and general thrift. If you are governed in all respects by the foregoing suggestions, the demand will increase for the next quarter of a century, at least, and besides having done a lucrative business, you will have established a reputation for having conferred a public benefit, and better for you than all, have conscience in this respect,

"Void of offense toward God and toward men."

I feel it a duty to talk plainly to propagators on this subject, for the more I see and learn of the plantings and failures in different portions of the State the more certain I am that the frauds practiced upon purchasers have been far greater than in any other branch of trade, and that nearly all serious discouragements to orcharding have grown out of these impositions.

I allude more particularly to those itinerant persons and companies that have penetrated every county, township and town almost, and imposed upon our citizens the dregs of Eastern nurseries purchased at less than half price and disposed of at higher rates, either conscious that they were worthless, or which is equally criminal, knowing and caring less whether they were of any value or not. A million of dollars would not reimburse the loss resulting from impositions of the character alluded to. I see and hear of instances every day. Our local nurserymen have labored and toiled under great disadvantages on account of this class of competition. Until recently there has been a rage, I might say a mania for foreign trees and vines; those cultivated in Eastern States. This resulted principally from two causes: First, from the fact that many of our citizens who came here from the Eastern States had their favorite sorts upon which they had "fared sumptuously" for years at the old homestead, and which itinerant dealers *always had on hand in abundance*, spoiling to be disposed of and transplanted. Second, because of highly colored plates or pictures, and splendid fruits done up in brandy, alcohol, or, perhaps, "sod-corn whisky," and carried around in bottles to be exhibited to customers, or I might say, victims, and by men too, whose laudations of the "magnificent" fruits they had for sale, were even more highly colored than their plates or bottled specimens. Such representations and clap-traps were irresistible until innumerable failures had occurred, when the whole thing collapsed, and there are now many farmers that will set their dogs on a man who comes with bottled specimens and pictures as the professed representative of foreign nurseries. While paying my respects to this class of dealers, who at least have been respectable in numbers, I would do injustice to them if I did not give credit for an exceptional case which has come within my knowledge, in which one of their number about ten years ago conferred a special favor on a very worthy gentleman and near neighbor of mine, while attempting to practice upon him a gross fraud. This neighbor selected out of the dealer's multifarious catalogue five varieties, of which he wanted four trees each, and which were accordingly labeled, sold, transferred and planted out. They have now been about five years in bearing, are splendid trees, quite prolific, and are every one the genuine Perry Russet, one of the finest Iowa winter apples for general culture that I know of. This is an exception to the general rule, and must be entered on the credit side for what it is worth, taking into consideration all the facts. But the reaction in this traffic is now complete, and the demand on home nurseries is far beyond the supply.

We must act well our part in the emergency. Let us cultivate *model kinds* and *model trees*, and we shall sell readily at remunerative prices, within the present generation, thousands of orchards, vineyards and small fruit gardens, which will accumulate in our illustrious Hawkeye State, and, in their season, be found almost literally groaning under the weight of their attractive and luscious fruits.

FRUITS AND FLOWERS,

D. W. Adams, Waukon, Allamakee Co., the able Secretary of the State Horticultural Society, shows 71 varieties of apples, among which Mr. Adams recommends for best winter apples of his section, the Ben Davis, Rawles Janette, Talman Sweet. The Golden Russet does well usually, but is inclined to blight. He has in his list the Hyslop Crab, a beautiful plum colored apple of a size almost equaling that of ordinary apples.

Of the Fall varieties he recommends the Fameuse as the apple for his section. The Fall Orange is also one of the best. The St. Lawrence is the handsomest apple in his collection, a large, dark colored, streaked apple with a flavor that compares favorably with the beauty of the fruit. It does as well with him as almost any other variety.

The Saxton, the Dyer, the Duchess of Oldenberg, are also excellent varieties, and should be in every northern Iowa collection. The Saps of Wine he names as his best summer apple.

Mr. Adams has 4,000 trees in his orchard, 1,500 of them in bearing. This shows that fruit can be raised in Iowa as well as elsewhere.

This season the best show is from the northern part of the State, and orchardists here from Southern Iowa themselves say that northern Iowa has done the best with fruit this season. I. Hollingsworth, Sandusky, Lee county, shows sixty varieties. This is the most southern locality in the State represented in the fruit line.

For winter apples, Mr. H. names the Ben Davis, Jonathan, Grimes' Golden, Striped Pippin, Canada Red.

For fall apples, he recommends the Maiden Blush, the Smoke House; for early, the Red Astrachan and Benoni.

The Hubbards Productive is a great bearer, but not early. The orchard includes about 35 acres.

Mr. H. has always raised the choicest of fruit and nearly always takes the first premiums at fairs in other States as well as this. Last year and this, however, his trees have not done so well, the frost last year, and the worms this year, hurting his crop,

The Mother Apple has brought him more money than any other, and he regards it as the *best* apple grown. The tree, however, although a good bearer, and the fruit of the best quality, is a poor grower.

Oliver Brook, of Denmark, Lee county, shows about 40 varieties of apples. He names the Genitan, the Big Red, with some of the varieties named above, as the most profitable apples to grow, being sure, hardy and good bearers.

Mrs. A. M. Wight, of Summitville, Van Buren County, Iowa, exhibits 26 varieties of apples, most of them very handsome, showing that the ladies make successful orchardists.

John Grinnel, of Clayton County, shows another splendid list, as an additional argument for fruits in northern Iowa. The choice varieties are much the same as those mentioned in the Adams list. The Golden Orange is conspicuous, and is as good an apple as is grown. The Fall Orange, the Strawberry, and others shown, are also valuable apples.

Elwanger & Barry, of Rochester, N. Y., have on exhibition 50 varieties of their choice pears. Mr. Howard Willey, of Bloomfield of this State, who is their agent in Southern Iowa, has charge of the collection, and has the glory of being awarded the first premium in advance by the crowd, for the beautiful show of which he is exhibitor.

D. Leonard, of Burlington, has 26 varieties of pears and 90 of apples. His show is a splendid one, and speaks volumes for his skill as a fruit raiser, and for his section of the State, as adapted to the fruit business. Mr. Leonard we were unable to see to get his views as to best varieties.

GRAPES.

John How, Keokuk, shows several of the standard varieties, and also a Concord vine festooned, with the largest number of clusters that we ever saw on one vine. It was wonderful how so many could grow on so little space. There must have been near a bushel of grapes on less than two yards of the vine.

Dr. Lyon, of Hancock county, Ill., shows 24 varieties and has as many more at home. The Doctor says the Ive's seedling is *the* grape. Hardy and a splendid bearer. It is a sweeter grape than the Concord, but not quite as large.

Gen. Bridgman, J. P. Cornish, Mrs. Jas. McQueen, Conrad Meister, L. F. Barney, Chas. Hubbell, and others of Keokuk, make a fine show in this line.

Mrs. Willis, of Hamilton, Ill., in addition to other fruit, shows fine specimens of her Monthly Raspberries—having a section of the bush alongside of dishes of luscious ripe ones, filled with the berry in all stages of growth; the ripe, half ripe, the green and the blossoms. She has sold over $500 worth from a half acre this season. She readily gets 40 cents per quart, and supplies her neighbors daily.

There is a large array of wine bottles, the principal kind being the Delaware, the Catawba, Concord, Clinton, Virginia Seedling. We didn't sample any of it, but as far as looks go, we give the premium to the Catawba.

PLANTS AND FLOWERS.

The show of plants and flowers is not better than that of the June Fair at Des Moines. There are many contributions from the conservatories of Keokuk. Among the names most frequently occurring in the collection we notice those of Mrs P. I. Lomax, Mrs. A. R. Wilkinson, Mrs. R. H. Huston, Mrs. Wm. Fulton, Mrs P. Vidal, Mrs. Mary Brown, Mrs. G. F. Voorhes, of Keokuk, with a few from points near, in Illinois.

J. C. Westhal & Son, of Davenport, have a fine selection of cut flowers.

On the flower stand, which is not half filled, is placed a hundred kinds of Candies from a Burlington factory. The location is made on the principle of "Sweets to the Sweet."

A novelty in the Fruit and Flower Hall is a miniature fountain, the jets being enclosed in arches of glass tube. The water is broken up into sections in the tube by the admission of air at regular intervals, and thus produces a most wonderful optical delusion, it appearing as though the glass itself in liquid form, was flowing up and falling back again into the basin of the fountain. The crowd could only be made to disbelieve this evidence of their senses by placing their hands on the tubes.

PLANTING THE CHERRY DEEP.—At a late meeting of the Rockford (Ill.) Horticultural Society, Judge Miller, the President of the society remarked on the cherry:

"In northern Illinois the heart cherries, the sweet variety, could not be advantageously cultivated, while the acid kinds grew in perfection; the new England scarlets, the Holmes cherries, English Morello, and the Early Richmond, were hardy, and in every respect desirable and adapted to this climate. Where no insects injure the trees or the fruit, these trees grow well and bear early and plentifully each year, and richly repaid the cultivator for care and labor, with an abundance of delicious cherries. In grafting cherries a number of kinds of stocks have been used. Some grafted on the Mazzard stock, others on the Morello and Mahaleb. He preferred the Mazzard stock, which was perfectly hardy, and not troublesome in sending up sprouts from the roots as the Morello. The Mahaleb, a French stock, was not hardy in this region, and dwarfed the tree, and should not be used here.

Mr. Jeffrey has planted a good many cherry trees, but those that were deep planted had done the best; had some two feet deep planted; had fruited with the Morello stocks; saw some sprouts last year.

Mr. J. J. Lake asked if any one had ever examined the roots of these deep planted trees.

Mr. Strachan said he had a row of trees on an average of eighteen inches; some over two feet deep planted on a clay soil; examined the roots last year; all sound and good, and trees do well.

The Vegetable Garden.

For the Western Pomologist.

The Vegetable Garden.

Although the farmer may upon his "broad acres" raise, wheat, rye, oats, corn, etc., in abundance—though his orchard may bring him apples, pears, peaches, and cherries—and his small fruit garden may load his table with strawberries, raspberries, currants and grapes, still there is a lack which can only be supplied by the Vegetable Garden. The farm will furnish the bread making products, the orchard and small fruits the desert, but for the supply of cabbage and potatoes, tomatoes and squashes we must look to the Vegetable Garden. Who would think of housekeeping without thinking of the potato supply, and what cook would be willing to superintend the culinary department of any establishment without an assurance that the supply of vegetables whould never run short? Picture to yourself the state of affairs, if our tomato-loving friends were to be denied, but for a single season, the luxury of a good tomato stew, or the condition of things in German settlements if cabbages were raised no more.

The Vegetable Garden being then one of the necessaries of life, it immediately follows that any effort at improving its condition should be hailed as a move in the right direction.

Do the gardens of the country need to be much improved, is a question which scarcely need to be asked. A glance over the fence into the gardens as we ride through the country, will give a better answer than I need give here. Weeds too often hide every thing else. When these are not present, too often insects, chickens, and other depredators are found in such abundance that the crop is small, and even THAT is badly injured and almost unfit for use.

Suppose even, the weeds and chickens and insects are not to be found, in how many gardens will we find the *best varieties* of vegetables? In too many, the same varieties are planted now that were introduced ten or fifteen years ago, as if the owners utterly ignored the fact that improvements can be made in varieties of vegetables, as well as in mowing and reaping machines.

In others, it can not be said that there are *any varieties*, or perhaps a better way of putting it would be to say, that in others the vegetables are *all varieties* and *nothing* else.—No distinct type can be found, while modification and mixtures of all known and unknown forms can be found in the greatest abundance. Is this over-drawn? I judge not, for the majority of gardens. There are in the aggregate many exceptions, it is true, and to the owners of these exceptional gardens I would give all honor, and would call upon them to throw in their weight and influence to aid in bringing about a better state of things.

One of the first requisites in securing a good garden, is a *permanent* location. The practice which is quite common among very many farmers, of moving their gardens every year or so, is a bad one for several reasons. It is a well known fact that the physical condition of the soil is under good culture, very greatly improved by deep plowing, and repeated stirring year after year. Let any one attempt to bring our prairie ground into good garden condition and he will be well assured before the end of one year, that although the soil may appear at first sight to be in good condition, yet it does not work easily, is full of the germs of weeds and in many cases has a very decided tendancy to working up in lumps and clods.

After a few years of deep plowing and thorough hoeing, the ground will be found to work more easily, and if proper care has been bestowed the weeds will have nearly all disappeared.

Another reason for having a permanent location for the garden is, that by repeated manuring and plowing the chemical condition of the soil is very much improved.—Take any piece of prairie land and give it one good, deep plowing every year for half a dozen years, keeping the grass and weeds from growing, and thus exposing the ground to the reducing action of the sun, rain and frost, and at the end of that time even if no manure has been added, the ground will be found to be in a much richer condition than at beginning.

One great thing that our soil needs is exposure to the air, this alone would add much in richness to most of our soils.

If now we add from year to year a good coating of manure, it is readily seen that there will be a great chemical change in the condition of the soil. These results are not reached however in one year, or in two years, but it takes a number of years.

What folly then to fit a place for a garden this year, and then abandon it next. Rather let a selection of a site be made and then let nothing induce you to move it; plow it, drain it, manure it, year after after year and instead of your garden *wearing out* it will become *richer* and far more easily worked. Instead of cold, wet ground in early spring, you will have a soil which though full of moistnre, is still porous and warm. Summer drouths will not affect such a soil, to nearly so great an extent as it does (that which is) newer and less thoroughly tilled. In fact, I am inclined to believe that it is to deep culture, such as the best gardens now receive, that we must look for a remedy against the terrible drouths we occasionaly suffer—nor will the benefits of deep culture be confined to dry seasons alone, for it is found that a deeply tilled field stands a protracted wet spell much better than those which are cultivated entirely on the surface.

I trust enough has been said to show the importance of fixing upon a permanent location, for the Vegetable Garden. B.

Iowa Agricultural College Farm.

For the Western Pomologist.

The West.

In the August No. of the POMOLOGIST, D. B. Wier promised to give us thirty years experience with varieties of apples "in the West," and Dr. Stayman gave a list of Roses "for the West." Now I submit that though these gentlemen have had very valuable experience in their own localities and what they have learned will be of great value there yet, to "the West," as a whole, it will not apply. Mr. Wier, of Illinois, Mr. Gideon, of Minnesota, Dr. Stayman of Kansas, Mr. Tuttle of Wisconsin, and Mr. Smith of Iowa, are all residents of "the West," and have been long and faithful students in the dear school of experience. Their minds are store houses of costly and valuable knowledge. No one would think of lightly weighing their opinions, yet not one of them is qualified by experience to speak for "the West." Get a list of varieties from each of these gentlemen, best adapted to their particular section and you will find one list that shall not contain one tenth of the names in another, and yet each one, be the best that could possibly be made in the author's home.

"The West," is no little garden patch of uniform soil and climate, but a vast domain stretching through several degrees of latitude and longitude and embracing great diversity of soil and wonderful differences of climate. In the nature of things it is impossible that one selection of varieties, or one mode of cultivation can suit all portions.

Let not us, then, who live in "the West" and fully realize its vast extent and varied requirements, commit the same error so often committed by our Eastern friends, who thoughtlessly including Michigan, Minnesota, Illinois, and Kansas in one West, make one recommendation cover the whole ground. As well might *we* give a list of apples and other fruits for the East, and expect it to be exactly adapted to Maine, Virginia, and New Jersey.

By all means let us hear from Mr. Wier for we all want to know about the resources and requirements of our different sections,—But at the same time let it be distinctly unnerstood that the Great West has many and varied requirements that the experience of no one locality can supply.

D. W. ADAMS,

Waukon, Iowa.

WILSON STILL AHEAD.—The Ed. of the *Gardners Monthly* for August, says a rather extensive tour through the Strawberry regions of western and southern New Jersey, revealed to us the fact that the Wilson's Albany Seedling is still the most popular variety with the market growers. In some instances, the *Agriculturist* was highly depended on, and again *Downer's Prolific* and Boyden's Green Prolific pistillate, when grown with a fertilizing variety were popular in some instances. It was rather mortifying to our love of progress, to find so many of our new and much-be-praised kinds consigned to such an early tomb.

For the Western Pomologist:

Raspberries and Apples.

As the raspberries have finished their harvest, allow me a word of commendation of the Cincinnatti Red, which has been the most profitable with me of any variety for field culture for the last twelve years. It is of fair quality, fine color, good size and prolific of fruit and suckers, the last is its great objection for garden grounds; it will bear carriage to market tolerably well, is in bearing about four weeks, and escapes the drouth better than Philadelphia, or Purplecane, and sufficiently hardy for Southern Wisconsin. If the Davison's Thornless proves prolific it will be a great accession to the Blackcap family—ten days earlier than Doolittle, and two weeks earlier than Miami, both of which bore the first fruit this year with me, and the Miami has done splendid.

Why farmers do not raise enough of raspberries for the supply of their own table the year round I cannot see. If they would give one-fourth acre of ground set to raspberries, the same culture they would if planted to corn, it would pay them in health and enjoyment, in dollars and cents, more than any other one-fourth acre on their farm; and I think, four to one, and pay too, the year after planting.

"Can't get the plants," do you say? The plants can be sent any where by mail in the United States, and the postage will not be one half cent each.

With the same care and expense for the first fifteen years, more bushels of raspberries can be raised from the same amount of ground than of any other kind of fruit, and never an entire failure of a crop. Who does not like raspberry jam, raspberry pie, raspberry canned, raspberries the year round?

The drouth was so severe with us the last spring and summer, that very much of the apple crop has fallen. The varieties that have held their fruit best are Sops of Wine, St. Lawrence, Kirkbridge White, Tallmano's Sweet and Golden Russet.

Sops of Wine has been disseminated largely throughout the Northwest, under the names of Wm.'s Favorite, which is almost identical though not as good a fruit, and the Early Washington. I have the true Sops of Wine under the three names from different sources. The tree is a fine grower in the nursery, bears young in the orchard, and its apples are sought after by the boys early in harvest, a little before Red Astrachan. Tree perfectly hardy and every way worthy a place in every collection.

St. Lawrence is too great a favorite to need any commendation from us; rather tardy in coming into bearing, and on the prairie inclined to rot before maturity, yet being so hardy, and fruit of first quality, it cannot be omitted from any collection.

Kirkbridge White, rather a new variety in the West, is as profitable as Duchess for the first ten years from planting. Not perfectly hardy, yet I have never lost a tree in orchard, and but few in nursery. Tree very upright, bears very young and full. Apple rather below medium, but the choicest eating apple for August and September, of any of the many kinds I am fruiting.

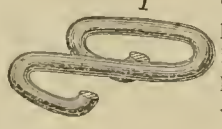
GEO. J. KELLOGG.

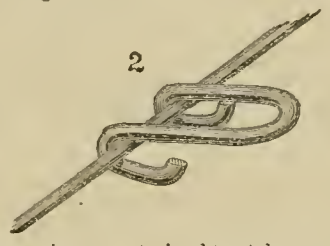
Belle Cottage Nurseries, Janesville, Wis.

The Vine Lock.

We here present the illustrations and description of a very simple contrivance for securing grape vines to the trellis, stakes, sides of buildings, or any other object, in lieu of twine or any other material used for a similar purpose. It is made of small wire, and shaped and applied as seen in the illustrations. The hooked ends clasp the wire of the trellis and secure the vine in its place with ample room for growth.

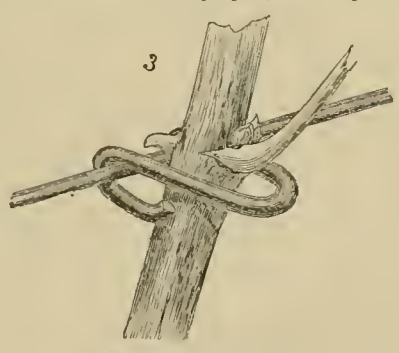
1





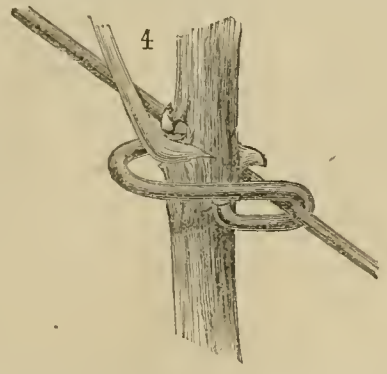
2

When vines are trained to stakes, wooden trellis, or on the sides of buildings, a nail or staple is used as a substitute for the trellis wire. If a nail is employed, the clasp hook



3

is placed towards the head of the nail. For securing horizontal shoots or canes the device has a different form. It may also be



4

used on small fruit and ornamental vines and canes requiring support. This convenient and economical device is the invention of Mr. E. F. Underhill, of Brocton, N. Y.

No. 1 represents the VINE-LOCK designed for upright or oblique shoots or canes.

No. 2 represents it as applied to the wire, with one hook closed that it may remain permanently on the trellis.

Nos. 3 and 4 represent it with the shoot or cane enclosed and secured to the wire.

In pruning the ripened wood, the cane is cut close to the Vine-Lock and then disengaged, leaving the latter suspended for use another year.

The advantages claimed by the inventor for his Vine Lock is a saving of two thirds, the labor required for tying, unskilled workmen in tying can perform the labor, the vine is secured from breaking away during high winds, no danger of the vine being girdled—its durability, (in comparison with twine, bass bark, willow or any other like material) lasting for many years. Another consideration is cheapness—the cost per 1000 not exceeding seventy-five cents.

Cropping Orchards.

I noticed recently in your journal communications on the bad policy of cropping orchards with grain. No doubt your correspondents are right, so far as half way culture is practised. But, under good cultivation, no such condition as stunted trees, or mouse-ear leaves of a velvety color, will be seen. Ever since I came to this neighborhood, I have been a close observer of the different kinds of fruit raised here, which is a very profitable branch of agriculture. Not only has there been marked success in the raising of apples, but also in peaches, quinces, and grapes. Of the latter, over sixty acres are planted out on an area of about four miles, fronting on Lake Erie. But to return to the subject of apples, I will try to show that grain-growing in orchards is not all moonshine.

Thirteen years ago a neighbor of mine had about three acres of orchard, containing old trees. He planted the remainder of the field, about three acres more, the old as well as the young trees being mostly R. I. Greenings. Every alternate year the orchard has been in fall wheat, yielding from twenty-five to thirty bushels to the acre, the other years it would be put in with, sometime barley, peas, beans, or corn, always yielding a heavy crop. As for the fruit crop it is spoken of far and wide, and all admit that Mr. Stover always has a heavy crop of apples. But Mr. Stover has a valuable receipt which he supplies to both land and trees. Every fall all the manure made during the year is put in the orchard to be plowed under. In the spring every tree is looked to, and all unnecessary wood, young shoots and sprouts from the root removed. The trees are then washed with lime and wood ashes, the mixture applied with a splint broom, which effectually removes bark-lice and moss from the trees. And I doubt very much if your correspondents ever saw much thriftier trees, old and young, or that bore better crops of finer fruit.

I could mention other orchards, set out 13 years ago, and treated pretty much the same way, with the same results.—*Cor. Canada Farmer.*

Horticultural Address

Delivered before the Iowa Eastern Horticultural Society, at its First Annual Meeting, at Iowa City.

BY SUEL FOSTER, PRESIDENT.

We have met together to-day to inaugurate the Iowa Eastern Horticultural Society, under very favorable circumstances. Let us give God the praise, who created the flowers, the trees with their life and action, and green leaf, flower, fruit and seed; all of which, when wrought out, was a miracle of infinite wisdom.

We have met to-day upon ground where but thirty-four years ago, when the author of this address first set foot upon this soil, the wild Indian had not left, and the plow had not turned the prairie sod, nor had any of these counties a beginning, nor a name, nor even the State of Iowa a name. I see before me some of the early pioneers of these fine and populous counties and cities, who endured the hardships and privations of first settlers, who are deserving the bounties which this soil and climate yields. All we have to do is to plant and cultivate, and fight the insects, and sit under our own vine and apple tree, and eat of the rich and bountiful fruit. More than thirty years have passed, and what a change has been wrought in this wilderness. More than one million of people in this new State, with city and county, agriculture, commerce and manufacturies, orchards, vineyards and gardens, teeming with the products and wealth of our older States which had been settled a hundred years before this. These things are wonderful to contemplate.

We have met together to council and discuss the subject of fruit raising, of flowers and ornamental trees, of forest culture and hedging. Our work is difficult and important. Its importance is far greater than the public place upon it; its benefits to our country are far greater than the public estimate it. Hence, our society is not only for our individual benefit, but to assist in directing public attention to a greater and more thorough work in this neglected branch of our industry. If we can induce a few more fruit trees to be planted, and properly taken care of, a few more flowers in the garden and front yard, and the girls to go out and learn to cultivate them tastefully and well, they will add health, long life and useful knowledge to their parlor accomplishments. If we can induce the farmers to plant a few more shade and forest trees, we shall add beauty and wealth to the country, and modify the climate. Show me a home without fruits, flowers and trees, and I will show you a family not of the first class; nor will such a farm, or home be of high value in market. Although money invested in good stock of animals will always pay a liberal per cent. it will rarely net as much cash, as the same amount invested in fruits and trees with the same good judgment and care, to be realized in the market value of the place, and a four fold value for that homestead to be kept out of market;—and again I say, homestead to be kept out of market. Plants fruits, flowers, and trees, the beauty and attraction of the homestead, the family attachment for our children, to stand as lasting monuments of refined taste.

Our fruits are of great variety, and each kind has its great variations. Hence, we have a wide field to select from. I have no doubt that some varieties of apples, which have been pretty generally planted in this section of the country, will not net one tenth as much as others. The same is true of all our fruits. Therefore the necessity of our meeting together to give each others experience and gather a valuable stock of information not otherwise to be obtained.

Each season differs from any former one. The past nine months has been very extraordinary, extremely disastrous and discouraging. Whilst we found no severity of season as regards the comfort of animal life, contrary to the expectation of the inexperienced in horticulture we found it very severe on many varieties of trees.

A letter from T. McWhorter, of Illinois, says: "Trees that were sold will one-third die. Discouraging for nurserymen."

J. C. Raymond, of Council Bluffs, writes: "Fruit crop very poor, except raspberries and strawberries. The past two months has been terrible on trees and fruits. Hundreds of White Maple, and even Cottonwood have been killed to the ground, even where they were six to twelve feet high. Pears came through best of anything. That is good news, isn't it?"

I will here remark that my young pear trees suffered about as much as the apple.

Mr. Nelson, of Wilmington, Illinois, writes: "Nursery stuff damaged badly."

The Osage Hedge, one and two years old, unless well protected, were very generally killed. And yet the Peach tree, which has heretofore been classed tenderest of them all, came through with flying colors this Spring, and everywhere where there are trees that delicious fruit appears. How is this, that whilst the apple and peach bloomed equally full, the apple failed but the peach did not?

I am of the opinion that the severe and sudden freeze in October was the cause of the mischief; the peach having finished its summer growth, was better prepared for winter freezing. Others may have more rational reasons to give than this, if so we want them.

Evergreens suffered equally with deciduous trees. I will name them in the order in which they suffered most: Red Cedar, White Cedar, and Hemlock.

The Pine, Spruces, and Fir, some of the young stock was damaged a very little. I am happy to inform you that my European Larch came through equal to the best of hardy trees. I had them two years old, set the Spring of 1869 —t] at rainy season we were scraping the weeds away from them all summer, and in many cases left the roots quite exposed, and what did not dry out did not freeze to death! so small that we could scarcely find the rows. I have them five years old, four to seven feet high. This is the coming tree for timber, to be put to more valuable uses than any other tree. Set a single row, and it will grow very branching for wind breaks, surpassed only by evergreens. It is cheap, easy of transplanting if done early, and a fast grower. Let every farmer plant European Larch.

Since writing the above I have a report from the Illinois Industrial University, in which the committee on Horticulture says: "The forests of Michigan, Wisconsin, and Minnesota, are rapidly disappearing, and yet, many of the new demands for timber have not yet been met, nor is the old supply likely to hold out. As a matter of economy in freights, if not in the superior quality of second growth timber, it is an object to grow them at home.

"Timber for railroad ties, culverts, cars, roadways and buildings of every kind and description, fences, vineyard stakes, hop poles stancheons for coal banks, soft wood for berry boxes, crates and staves; hoop poles, carriage and wagon material, agricultural implements, and the multiform wants of the age make up a demand of most surprising magnitude that will add to our rural industry, an importance that the most sanguine have not yet dreamed of." The first named tree for these uses is the Europena Larch.

Very few of us comprehend the importance of timber planting. We have good evidence that if one-eight to one-fourth of every farm was planted to timber, the rest of the farm, if put in grain, would produce more than the whole of it without any timber for wind breaks. Wood is an article of every day use, second only to our food and clothing.

There is a vast difference in the value of the variety of trees to plant—for fuel wood should be sold by the ton when fully dry; that containing rosin, as the evergreen and larch would be worth most by the ton.

For some years I have been advising to plant for timber close together, and Judge Whiting's experience in Mononi county, is for planting 2½ by 4 feet, and then cut from time to time as they grow. The time is coming when it will be considered bad economy to depend on natural growth wood for our supply. We do not comprehend the difference between a well planted and well cultivated grove of timber, two by four feet apart, or four by five of the right varieties, compared with a natural grove of scrub-oak, hickory, elm, cotton-wood, etc., growing up hilter skilter, low tops, crooked and forked. John J. Thomas estimates that down East, on their hilly, rocky lands, a native grove will yield twenty cords of wood in twenty years, which is about the right length of time to cut the wood-land over and let it grow up again. We may reasonably calculate that an acre of thrifty growing timber, such as larch, walnut or soft maple, will produce, when rightly planted in rich soil, four times twenty cords in twenty years. And sixteen years out of the twenty, this timber needs no care whatever except to keep the cattle out until the trees are out of their reach.

We have such a variety of fruits, that we are supplied the whole year around: the strawberry coming the 1st of June, and the apple lasting until that time. Let every farmer, and all who have a garden, plant enough of each variety for an abundant supply for the family. The strawberry, raspberry, blackberry and grape, following each other in close succession. Our girls ought to learn how to cultivate flowers and fruits, to take more out door exercise for profit and for health, for pleasure and useful occupation of time. While on this subject perhaps it will not be out of place for me to refer to our Agricultural College. There are quite a number of young ladies at that institution, for the purpose of acquiring a useful education, and among other things, they are studying the science of Horticulture, and learning the practice in the garden and ornmeantal grounds.

Some will say—let their parents teach them industry at home, I would say—let not their teachers unlearn any good thing they have larned at home, in their absence from that home. Make a new home for them, and have them live as they should live at home.

Education—what is it? and what ought it to be? A learned President of one of our literary colleges said: "Education heretofore consisted in words, the derivation of words, and the arranging them into sentences—words, the mere shadow and representative of things, with which men are no longer satisfied, but want to learn of the things themselves." This is the sum and substance of the important reform we sought, when we petitioned Congress to help us to start our Agricultural Colleges, and after four years deliberation, they responded most nobly to our petitions.

Education—what is it? If a word misspelled, a wrong punctuation, a capital letter misplaced, such an one is by the learned leaders of society considered an ignoramus. Those who thus set in judgment over the character and destinies of their brothers and sisters, themselves do not know one variety of wood from another, one tree from anoth-

er, one variety of apples from another; and when they send to the grocery for a barrel, they don't know a Pennock from a Pippin, a Demine from a Jonathan, Ladies-Finger from a Grindstone, a Sugar-loaf from a Smoke-house.

Hear one of our authors in a Botanical Text Book, giving us the law of science: "The downward direction of the root is accounted for by the delicacy of its fibers, which cause them to shun the light and air, and also by the effects of gravitation which they have not the force to resist." Mrs. Lincoln's Botany, 1857, page 28.

And yet if we spell the word cider with an S, we should be denounced as ignorant, when the reader would readily understand that we meant the juice of the apple. Thanks to the God of Creation, He has given us the fundamental laws, and they are unalterable. Hence, if we find that our literary and scientific authors—authors of words—have passed to us any of their laws conflicting with the great constitution governing all, we to-day, assume our right to repeal and disobey.

They tell us that the spongioles—the young, tender and very small rootlets—are the feeders and providers of plant food for the support and growth of the tree. Allow me to deny this law for the very young tender and growing rootlet, is the recipient of plant food and nourishment of the parent tree, rather than the contributor. The whole root is quite spongy and porous, absorbing moisture wherever the moist earth comes in contact with its bark.

Hence in transplanting a tree, we deprive it of all its fibery rootlets (erroneously called spongioles. Mr. McAfee, the Illinois Botanist says) but preserving a sufficient quantity of larger roots, the tree lives and goes on with its growth, simultaneously making leaves and new roots.

The seed is placed in the ground; it absorbs moisture through the pores of its bark; it has no spongiole, but commences growing, and where the seed lies is the axis of the tree, sending its roots downward, and its top upward. Centrifugal force sends the top up—does it? This seed is a new generation, formed in the womb of the flower; its life and character then and there starting amidst the fragrant and sweet air, the bright and coloring sunbeams, the solid substances of the earth, its die is cast, it comes forth a new variety, a living being. Can we not assist nature in coloring new varieties of fruit, and giving them desirable flavor? This tree is destined by the laws of nature, to live on through ages untold, with the care and careful educated assistance of man, by grafting and careing for its health, its age is renewed and its growth prolonged.

To contemplate and study the life and growth of a tree, is greater than the study of words, and arranging them into sentences. Where is the accumulated knowledge of the world, that which has been gathered for ages, that is able at this day to teach us these things? Truly this is an age of progress, when men from the plow, the hoe, the pruning-hook, and the basket, dare arraign the teachers of the world for not having taught us the useful things of every day life, teaching us for years to study words—mere nonsense of the tongue.

Do not misunderstand me. To be properly educated in words is a refiner of character. "Words fitly spoken are like apples of gold." Our education has been wrongly balanced, I was only trying to right the ship.

But we are pleased to see that very many of our literary colleges are providing a professorship of Agricultural and other natural sciences. And of course there will be farther improvement in this direction to meet the public demand, so fast as they are reminded of the necessity.

As to the business of this meeting it would be well for us to first resolve whether we will sustain this Horticultural Society. If not, we may as well shake hands and go home; but if we are to sustain it for the good of the cause and the country, then let us not half do it, but have our annual Meeting, and have a good one—a social, good time,—renew old acquaintances and form new ones,—in the *interim*, while at home, gather many new and valuable facts and experiences, and bring them together, making a very large and valuable collection.

For the Western Pomologist.

Model Crops of Fruit.

Who that attentively reads the journals, periodicals and newspapers of the day, can have failed to notice the numerous, almost incredible stories of immense crops and production of fruits, etc., of one variety or another; as having been produced by some amateur, or extensive, experienced cultivator.

And always in connection are words of inducement for others to start in the same enterprise; usually embracing some rose-tinted account of the ease and certainty with which such a crop, or such variety of fruit is produced. Such stories once started, usually go the rounds of newspaperdom, and as a general thing do not lose anything of their attractiveness by passing through numerous hands,—type setters, proof readers, etc. The credulous and uninitiated swallow the whole, and so universal is the love of gain implanted in the human breast, that a great number become impatient to imitate.

That there are instances of such extraordinary success there can be no doubt, for the witnesses and testimony is altogether too strong to be refuted; but by their publication only one side of the question is exhibited, and that, the bright side; were the other side, which seldom or never is made public, published alongside, less harm would be done, or rather less excitement would be created or disappointment met with. Instead of this we are all too impatient to publish good news and success instead of relating our, or our neighbors non-success or failures; whereas, did we but as faithfully relate these, giving culture and probable, or theoretical causes, much more important lessons might be learned, and the honored art of Horticulture be advanced while its science would be greatly aided.

Mankind are so constituted that the honor of excelling all others in gain, seems to be almost universal. These gains may be in one form or another—in growing fruit, it is in obtaining the largest crops and selling for the most money, and thus realizing the greatest profit; certainly a very honorable desire, or competition; but few, compared with the whole, are there who are willing to work for the mere sake of advancing their art; yet we find some who are more so than others, and these are they who most freely tell us of their want of success in any given line.

Where we find reports of extraordinary success, with any one given variety of fruit, for one season, there are extraordinary circumstances attending its production, and such success is seldom constant or reliable; seasons vary, insect and other enemies are inconstant—one year destroying the greater part of the crop, while at others doing but very little or no injury. But setting aside these variations there are other and greater reasons operating to show us why there is so great difference in the successes of individuals occupying similar soils, in the same climate and locality.

Seldom do we find two neighbors, living and improving land side by side, that will succeed equally well with the same, or similar crops; much less so where they reside in widely different localities; the reason is, they do not have the same tastes or adaptedness, for it is an established fact that success in any given undertaking depends, all other things being equal, upon peculiar adaptedness of the workman, a love for his pursuits. A man may succeed in producing model crops of fruit and yet be unsuccessful for the want of some little essential in disposing of, or marketing them; for often-times as much depends upon marketing properly as upon producing, in order to meet success. Two neighbors will produce equally good fruit—say a crop of strawberries; one will market his so as to realize 15 cents per quart above expenses, while the other will only realize 5 or 6 cents per quart. Now why this difference on equally good fruit? In the first place A. selects his commission merchant in advance, arranges as to commission, etc., and when his fruit is ripe it is carefully picked and as carefully assorted, put in neat, clean boxes and crates, correctly marked, and as carefully shipped—no facing or other like deception is resorted to, but all is above board; he notifies his consignee regularly, and his fruit arrives at its destination as advised. B., on the contrary, is less particular in assorting his fruit and in forwarding in neat boxes, crates, etc., and his fruit goes forward less regularly, and when received it is less attractive and the merchant can only sell it as a 3d, or 4th quality of fruit. Other cases might be illustrated, but enough are here introduced to show the thoughtful why all may not succeed alike in fruit culture. I shall be sorry if anything here brought forward or inferred shall deter any one from entering upon the culture of fruit; but that in so doing they may do it more understandingly, not to be disappointed if they do not succeed in obtaining model crops.

Hartford Co., Conn. W. H. W.

NOTED FRUIT REGION.—It is said that in the immediate vacinity of St. Joseph Michigan, there are 409,048 fruit trees, covering 3,710 acres. In the year 1869 the fruit trade brought to the fruit growers of that region the handsome sum of $684,000 for what was shipped away by vessels, and $20,000 for that taken away by wagons.

THE POMOLOGIST.

The Iowa Press Excursion.

The first annual excursion of the Iowa Press Association, was made the last week in July, over the line of the North Missouri Railroad, extending from Ottumwa, Iowa, to St. Louis, and thence to Leavenworth, St. Joe, and Council Bluffs. The general rendezvous of the party, which numbered about two hundred gentlemen and ladies, was at Ottumwa, on Tuesday the 26th. The excursion was made in accordance with an invitation from the above named railway company to take a free ride over their line and to celebrate its completion from Ottumwa, to St. Louis—an event of no ordinary importance to Central and Northwestern Iowa,—giving this part of our State direct communication by rail with St. Louis—the great commercial emporium of the upper Mississippi. On Tuesday morning, at an early hour, in company with quite a large number of the excursionists, we were on the way to Ottumwa.—The morning was fine—clear with a fresh, cool breeze, and leaving the dusty streets of Des Moines, we were soon gliding over the magnificent prairie and cultivated farms which spread far away on either hand. The country down the valley of the Des Moines never shone more beautiful. The small grains were cut and in the shock, while the vast fields of waving corn on all sides was boundless to the eye.—About 11 a. m. the train reached Ottumwa, where the excursionists were cordially welcomed as guests of the city, and all conveyed to the places assigned them in carriages. In the evening a formal reception took place. Mayor Littleton in a few appropriate words welcomed the excursionists to the city, in reply to which John P. Irish, in behalf of the association, responded in a few brief, and happy remarks.—These ceremonies concluded, the guests were invited to partake of a feast of good things.

On Wednesday morning the party left Ottumwa by special train, on the North Missouri Railroad and arrived at Macon, about 1 p. m. where a sumptous dinner had been prepared and in waiting for the excursionists at the instance of the officers of the railroad company. Dinner over, we were again under way—reaching St. Charles about 8 o'clock in the evening. Here the train was met by a Committee of Reception from St. Louis, and on the way into the city each guest had his place assigned before leaving the cars. Arriving there about 11 o'clock, carriages were in waiting to convey all to their several stopping places.

Too much cannot be said in commendation of the preparations and arrangements on the part of the North Missouri Railroad Company, in conjunction with citizens of St. Louis, for the comfort and enjoyment of the excursionists;—the assigning of their guests before their arrival, to the first class hotels in the city, and the admirable facilities for the speedy conveying of every member of so large a party to their respective hotels. And then the cordiality of the reception and the entertainment during our stay in the city! Had we been on a visit to kindred friends after long years of separation, a welcome more cordial could not have been extended.

Thursday forenoon the party enjoyed a steamboat excursion down the river to the St. Louis Iron Works, where a novel sight was witnessed in a stream of liquid iron flowing out from an immense furnace in its channels of sand, and distributing itself into the mounds prepared to receive it. The heat was intense and the visitors soon beat a hasty retreat to the boat, and were soon afloat and steaming up the river. On the return trip, ice cream, wine, lemonade, cakes and other refreshments were served out to the company in unstinted measure.

After dinner carriages were provided for an excursion through the city, *via* La Fayette Park to Shaw's Garden and the Fair Grounds. The Park is a beautiful place, but Shaw's Garden, otherwise called Tower Hill, is paradistical. It would be sheer idleness to attempt any adequate description of the beauty and attractions centered within the area of this beautiful spot. It is one expansive field of the rarest fruits, plants, trees and flowers that could be collected from all quarters of the globe. The grounds are intersected with walks in every direction, and every where bordered with flowers, miniature trees, and ornamental shrubbery. Every thing is arranged with the most artistic taste and skill. These grounds are private property, and in their improvement have cost the owner, Henry Shaw, one of the millionaires of St. Louis, immense sums of money. Mr. Shaw was at home and received his guests with the greatest cordiality and hospitality.

The next point made in the programme of the day was the Fair Grounds of the St. Louis Agricultural and Mechanical Association. The improvements upon these grounds are unquestionably the most expensive and complete of any fair grounds in this country. The amphitheatre is a prominent object. It is about 500 feet in diameter, and is computed to seat 75,000 people. A gigantic flag-staff was lying upon the ground nearly completed, to stand in the centre of the arena. After an hour or two spent in looking over the grounds, and in partaking of refreshments spread upon long tables in the spacious hall of the mechanical department, the excursionists returned to the city—delighted with the day's wanderings and the friendly and cordial attentions everywhere shown them by the citizens.

Friday afternoon the party left St. Louis on a special train provided by the North Missouri Railroad Company, and reached Leavenworth Saturday morning, where a most cordial welcome was extended from the citizens, and by whom the excursionists were most generously entertained during their stay. We had scarcely shaken the dust from our garments when Dr. J. Stayman, by some *hocus pocus* (for we had not before made his personal acquaintance) recognized us in the crowd, and at once escorted us to his pleasant home a little outside the city limits. Here we had the pleasure of making the acquaintance of Mr. Wm Tanner, President of the Kansas State Horticultural Society, and his lady. After a pleasant chat with these gentlemen and their ladies around the social board of our host, Mr. Tanner took us into his carriage and made the circuit of the city—visiting Fort Leavenworth and other points of interest. On the trip about the city, we noticed many very fine and substantial residences and public buildings; but more pleasing to us was the manifest good sense of property owners in the ornamentation of their grounds with shrubbery, plants and flowers. For we hold that whatever enlarges the sphere of rational enjoyment, is always useful in social life, though it may not be absolutely necessary to mere animal existence. We were very agreeably disappointed in the locality and appearance of Leavenworth. A finer situation for a city is nowhere to be found in the West. The city is built high up from the river on rolling ground, with a semi-circle of forest-clad hills two or three miles distant, and presenting a most charming back-ground and landscape.

During our stay at Leavenworth we were the guest of Dr. J. Stayman, Mr. Wm. Tanner and Dr. Wm. M. Howsley—all ardent horticulturists and live, practical men. In company with such a trio of genial spirits, it may well be supposed that the few hours we spent at Leavenworth were extremly enjoyable. And to these gentlemen and their excellent ladies, who so generously entertained us, and made our first visit to their city so pleasant, we extend most hearty thanks.

On Sunday eveuing the party took leave of Leavenworth and reached Council Bluffs on Monday evening. Here, as elsewhere, the excursionists enjoyed the hospitality of the citizens for the day, when the first annual excursion of the Iowa Press Association came to an end and each member went their way. The trip all through, could not have been made more enjoyable—it was one continued ovation. We must defer to another time, mention of what come under our observation horticulturally on the trip, for what we have already said encroaches upon space allotted to other matters.

Acknowledgment of Fruits.

Our thanks are due to several friends who have of late favored us with specimens of fruit.

Mr. James Smith hands us several varieties of the apple, among which are very fiue specimens of Fall Orange. Baily Sweet, Scarlet Pearmain, Tallman and Pound Sweets. All these are doing well with Mrs. S —every tree of Tallman full of fruit this season; Fall Orange, the finest specimens we have ever seen.

Mr. John Smith showed us through his orchard a few days ago, and we were glad to see many of his trees in fruit, and fast recovering from the canker worm raid made upon it two or three years ago. He regards the Jonathan and Raules' Jannette the two most profitable market sorts.

Mr. D. B. Clark, Council Bluffs, brought to us at the time of the Soldiers' Reunion, quite a collection of apples—mostly seedlings, some of which we find quite equal to many of the improved sorts for culinary purposes—being large and well flavored. In the collection were some very fine specimens of the Northern Spy. Of this variety Mr. C. said he picked specimens from his trees last season that weighed a pound or more each.

THE WESTERN GARDENER.—We acknowledge the receipt of the first number of this new Monthly published at Leavenworth, Kansas; Dr. W. M. Howsley and J. T. Lockwood, editors. The *Gardener* is in pamphlet form, 32 pages, $1 50 per annum, and devoted to *Horticulture, Arborieulture, and Rural Affairs;* is ably edited, and its typographical appearance very neat. The gentlemen in charge of this enterprise are well qualified to make a valuable paper.

A NEW GRAPE.—Mr. J. C. Neff, of Duncan's Falls, Ohio, sends us specimen clusters of what he calls "Black Hamburg," or "Rhine Grape." Mr. N. Writes: "the original vine was obtained from the Rhinish Districts of Germany seven years ago, by Judge Hana, of Mechanicsville, Ohio. Vine a rampant grower, very productive, both fruit and vine unaffected by rot, mildew, or any other disease, and outsells any other variety in the market,"

We are sorry to say the fruit reached us in such a demoralized condition that it looked like any thing but grapes. A paste-board box should never be used for the conveyance of such fruit through the mails.

The Miner Plum.

Mr. Alfred Giddings, of Sabula, Jackson county, sends us a liberal package of the Miner plum, the first fruit of the kind we have ever seen. Fruit about the size of Lombard, and in quality comes quite up to expectation from what we had previously learned of it. We could discover no marks of the Curculio, the fruit being plump and fair. Taking into account fair quality of fruit, the hardiness and great productiveness of the tree, we cannot but regard the Miner a valuable acquisition to the fruit garden. We had long wished to see and taste the Miner, and we have to thank Mr. Giddings for the first opportunity. In a note accompanying the fruit Mr. G. says:

"*Editor Western Pomologist.*—I am sending you a few of the "Hinckley" or Minor plums, which I hope you will receive safely. I wish you were here, so that you could see them on the trees, for they are in such great abundance this year, and that is, I believe, what cannot be said of any other variety of plum. We are able to sell them as low as 75c. per bushel under the tree, or peddled out in towns, up to $2. The sample which I now hand you comes straight from the old "Hinckley stock."

The Season and Fruit.

Editor Pomologist. — The drought in May and July cut short much of the small fruit crop. Fruit is very scarce. Not many apples, some peaches, a few grapes; no other fruits worth mentioning, consequently the insect report is very short this season from this section.

There are but few pears and of the finer cherries planted here, but so far the following varieties of fruits are the best here:

Apples.—Red Astrachan, Yellow Bellflower, Maiden's Blush, Rambo, Smith's Cider, Summer Queen.

Pears.—Bartlett, Doyenne White.

Peaches, mostly native.

Small fruits, kinds mostly recommended.

Mexico, Ind. D. A. F.

Fruit in Tennessee.

Editor Pomologist. — Fruit does remarkably well here. Peach crop a failure in some portions of the mountains, in others good. Apples excellent everywhere; very few worms or imperfections of any kind. Grapes perfect, even in the woods, and in *neglected vineyards*, of which I know one of Concord, Catawba and some other varieties, and *no rot*.

The Muscadines grow wild here as large as I ever saw the Concord, and I have seen them covered with bloom as blue, and the flavor is quite good, although the skin is thick, and pulp hard.

If I expected to live long enough to carry out my desires, I would cultivate these native grapes, and hybridize them, then raise new seedlings from the hybrid fruit seed.

W. C. Condit.

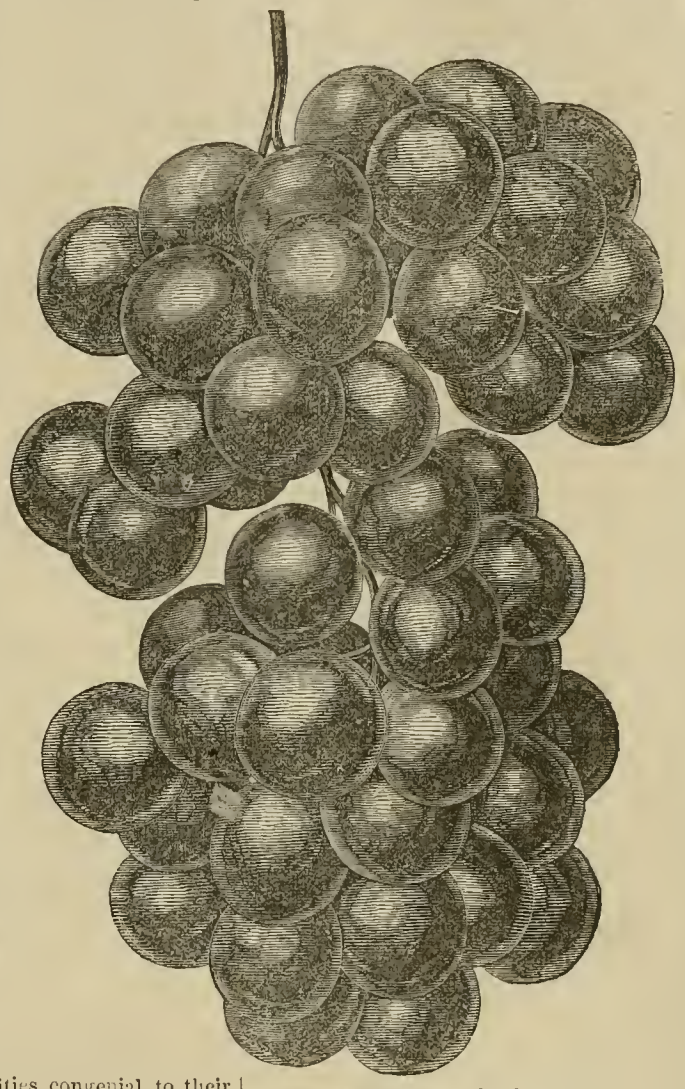
Howard Springs, Tennessee.

Wild Plums.—The Cedar Rapids *Times* acknowledges the receipt of a "very superior variety" of wild plums. They hang in clusters upon the trees—are very large and uniform in size. People should give more attention to the propagation of the plum. There is as much if not more difference among the wild plums (in quality) of the thickets as among the improved. Many of our wild plums are worthy of domestication. Some of them grow to a large size and by no means deficient in flavor.

Mounding Trees.—Peach growers of Wayne county, Ind., say there will be full crops where the trees were mounded late last fall, and half a crop elsewhere. A foot and a half or two feet of mounding is recommended.

The Dracut Amber.

The accompanying engraving illustrates the the Dracut Amber. This grape is not yet much disseminated, but where tried has proved quite satisfactory. Mr. J. W. Manning of the Reading nurseries, Reading, Mass., has made it rather a specialty among grapes. He says it never fails of a crop even in the worst of seasons, and ripens up some ten days earlier than Hartford Prolific. We also have very favorable reports on the Dracut Amber from other sources. The Superintendent of the Experimental Gardens at Washington, in his report to the Commissioner of Agriculture for 1868, says:



"The Concord, Hartford Prolific, Ives, Perkins, Clinton, and Dracut Amber, have proved to be the only varieties perfectly exempt from disease during the past year. The Adirondack, Iona, Delaware, Rebecca, Diana, and others of very superior flavored fruit, when compared with the preceeding list of healthy varieties, will decidedly take precedence in localities congenial to their growth; but their liabilities to disease should always be taken into consideration, when extensive planting is contemplated. The conditions securing success, although known, cannot always be made available, and, in planting new localities, experiments can best decide upon the most suitable varieties."

Grapes in Vine Valley. — Accounts from this valley, published in the *Cultivator and Country Gentleman*, state that the vintage this year will be fully two weeks earlier than last season, but the crop as a whole will not be in excess of what it was then. Isabellas and Delawares are set down for a full crop; Catawbas about an average; Concords and Roger's Hybrids fruit sparingly; Ionas doing well there, though indifferently about other points.

Fruit for Dyspeptics.—The Troy *Whig* reports that a physician of that city, of many years experience declares that he never knew a confirmed case of dyspepsia that could not be cured by a free use of ripe fruit—more especially apples which possess certain qualities that affect, favorably, the human system. In summer the people would be much healthier if they ate meat no oftener than a few times a week, and used fruit and vegetables instead. Pork and lard are the great promoters of dyspepsia, and fevers and billious diseases are fed by keeping up our bodily heat of mid-winter through June, July, August, September, by never changing our diet from the heavy meals of January.

Barrenness of Apple Trees.—The Maine *Farmer* says: "David C. Pottle, of Alna, had two apple trees that were about thirty years old, and never bore any fruit nor even blossomed. One of them had been grafted sixteen years, and the other was ungrafted. They were apparently in good health. He spread two or three quarts of salt under each one as far as the limbs extended. The next year they bore crops and have continued in bearing each season since. The application of salt was about six years ago, and it has not been repeated. Let other readers of the *Farmer* try the experiment, and tell us the result.

For the Western Pomologist:

Notes on Trees in the Northwest.

Twenty years experience with forest trees—What to plant—The Linden for honey—Siberian Crab Seedlings for shelter belts, &c.

Experience is said to be a good teacher. It has taught many a valuable but expensive lesson to the tree planters of the West. Yet there are thousands freshly arriving who will have to pay the same price except they learn more cheaply through the medium of such valuable papers as THE POMOLOGIST by comparing the experience of others.

Allow me to present a few of the results of twenty years' trial of various kinds of forest and fruit trees in the climate of northern Illinois.

In 1850 I brought from Ohio and Michigan a quantity of one year old seedling forest trees, including evergreens, and a very full assortment of the various kinds of fruit trees. Experience with the latter has been so fully and frequently treated of that only the former will now be alluded to. My forest seedlings were grown for sale and closed out in about eight years, occasional additions being made during that time. From fifty to one hundred trees of nearly every kind were transplanted or allowed to remain where first set for permanent shade trees. Most of these, with the exceptions I shall mention, are now living, and many of those sold may now be found in the vicinity of Elgin, Ills., from fifteen to twenty years old forming noble trees, which any man might be proud of having planted. Of the kinds most largely planted were the White Ash, Chestnut, Elm, Tulip, and Walnut. Of the Chestnuts sold or transplanted few survived, but those which were allowed to stand where first set continued to flourish for about fifteen years, blossoming frequently, but never bearing any perfect fruit; the burrs did not ripen or acquire their full size. For the last four or five years they have declined and this season many of them appear to be dying. The freeze of last October injured them much. I think they are not hardy enough for the Northwest—a fact I am sorry to record as much was hoped from the Chestnut as a timber and fruit producting tree. Parties North and West of Chicago had probably best be sparing of investment in the Chestnut tree.

The Tulip tree, or Whitewood did not bear transplanting. Only a few trees are now alive and they are not in a flourishing condition. It is too tender.

Some seedling Sugar Maples that would not "get up" while young have at this date nearly caught up with the Elm and Ash. The latter is the most satisfactory tree to propogate from seed that I have ever tried, being as easily grown as the Red Maple and far more valuable for every purpose. The Black Walnut and Butternut have not answered the expectations as to size. Some of the former have died, I think from the effects of repeated denudations by the caterpillars. The Ohio Buckeye is very hardy, fruitful, slow growing, and worthless, except for ornament. The White Birch is hardy, but not so large now as Sugar Maple of the same age. Hickories and Oaks have done well when allowed to stand where the seed was planted, but have not been a success when transplanted. Red Cedars and Hemlocks are tender.

The Balsam Fir has made the finest formed trees to be found among the evergreens. One specimen thirty feet high and a perfect pyramid, measures twenty-four feet across the base, the lower limbs being strong and full and lying all along on the lawn. *But* the grounds were not pastured with cows while the trees were young. A neighbors girl however, did ruin the finest spruce one cold day in winter, thrashing the boughs with a pole to obtain the cones. A cow could not have damaged it so badly.

Only four trees of the Lombardy Poplar were planted, three in a group behind the house and one at the barn gate. They shot skyward rapidly, and have formed a sort of spire to the plantation and a landmark across the prairie for miles. But they are now beginning to "go dead," a fate overtaking nearly all the Lombardys of that age. The owners of places planted with long avenues of these dismal trees will soon have the "dead wood" on these trees for certain.

I had always been sorry for planting a tree of the Silver Abele or Poplar on account of its being too easy of propagation at the root, but on cutting down a tree on the place where I now live, I was astonished to find nearly a cord of wood, and still more that it would burn quite freely while green and make a hot fire.

I have still some of this wood dry and shall make further experiments with it. Speaking of cheap fuel on our large prairies, the Peach is grown with profit in Kansas and I am told that the Transcendent Crab is equally valuable for the same purpose in Minnesota. Mrs. S. K. Webb, of Meeker county, Minn., writes that she has grown a splendid shelter belt of Siberian Crab Seedlings, "now ten years old, twenty feet high, which the high winds of Minnesota has never broken, and the fruit on many of these seedlings, though small is of excellent quality for eating and superior for cooking." This is certainly killing two birds with one shot, growing firewood, shelter, and fruit at the same time.

When it is remembered that the wood of of the Peach and also of the Siberian apple tree is of the very best quality for fuel, it is wondered that their use is not urged upon the people of the prairies in those States where they flourish, as it is probable a given quantity of wood could be grown with less cost and time from these, than from any other kinds of equally compact woods. The Lach is too valuable for other purposes to be use for fuel, and the Willow and Poplar are too light for profit.

The Linden, or Basswood is a tree easily propagated from seeds or suckers, and though the wood is not compact for fuel, yet the tree is one of the very choicest for shade and ornament on account of the splendor of its foliage and the fragrance of its blossoms. Besides this there is another important purpose for which this tree is valuable, viz: honey producing. The honey made from Linden blossoms is of the best quality. The Linden trees on the place above referred to are now more than paying cost in this way alone. Bee-growers should plant the Basswood plentifully.

The results of my experience are such, that in planting a place I should, of native forest trees, plant principally the following in the order named. For street rows, White Ash, Elm, and Sugar Maple. For the lawn, proper, only such low growing trees as the Mountain Ash, White Birch, Buckeye White Thren, Wild Crab, (*Pyrus Coronaria,*) and very sparingly of the Evergreens, Balsam Fir, Spruce, and White Pine. For the park or pleasure ground, Maple, Linden, Box Elder, Oak, Hickory, and Butternut For the timber belt, Larch, Ash, Sugar Maple, Box Elder, White Pine, Walnut Hickory, and Linden.

Where all of these could not be obtained plant the Cottonwood, Soft Maple and Willow for the street; the Sumach, Thorn, Crab and Linden for the lawn; and the Cottonwood, Oak, Hickory, and Walnut for timber, all of which can be found along nearly every water-course in the West.

The Locust of every kind are "no good," would prefer instead for tree fences the Cottonwood, or White Willow, which will probably make the best live fence wherever the Osage will not stand. Of the kind of trees that are now being much puffed and planted be careful of the Chestnut, the Red and White Cedars, and the Lombardy Poplar.

The above conclusions may clash with the experience of others, as doubtless they will with their prejudices, but I have stuck to facts as close as my observation and judgment would permit. I have none of the trees recommended for sale.

Much is now being said and done to encourage tree planting for shade, shelter, timber and isothermal effect. But one point it seems to me is overlooked, or else the neglect bears too stronly the 'trade marks' of interested parties. While all our leading horticulturists and nursery men are blowing hot about propagating and planting trees, the subject of preserving forests, belts, parks and groups of native and noble trees that were found standing on our soil, or have sprung up since the country was settled, is left out in the cold.

Dr. Warder lately made the remark that every time he came to Ills., he observed an apparent increase of timber from the natural

growth of the young forrests which have sprung up since the cessation of fires on our prairies. This is undoubtedly the case in all our prairie States notwithstanding thousands of acres are annually cut down for fuel or cleared off for cultivation. Now to cut down a young forrest that yields 5 or 10 cords of wood per acre which if let alone a few years longer would yield 20 or 30, is manifestly a waste, and clear off the young growth from a piece of poor land, when the annual growth of timber would be worth double the value of any crop that will grow on it, is still more clearly a waste. Yet I have in my mind a talented horticulturast and ex-officer of one of the largest western Horticultural Societies who went directly home from a Horticultural meeting where tree planting had formed a principal topic of discussion, and who had voted for State aid to tree planters, and cut down a beautiful natural copse of young forest trees and shrubs, to restore which, with as fine landscape effect, would defy the skill of the best artist in that line, and would take at least 20 years of time. And what is worse, this man professing a strong love and taste for trees is replacing his grounds with costly evergreens and other nursery trees, in the hideous, medieval, geometric style so common in this country.

Such acts are really crimes against civilization, disfiguring the country and impoverishing the State. And yet this practice is just the thing to put money in the pockets of the nurserymen.

Having touched upon the subject of planting and preserving trees for landscape effect, and the hideous errors encouraged by the trade, I should like at some future time, to offer some suggestions on the same, but as these notes are already too extended I forbear for the present.

C. Andrews.

Marengo Ills., Aug. 20, 1870.

A Florida Apple Orchard.

We visited, recently, the apple orchard of Mr. John J. Colson, on his plantation, about two and a half miles from town, in company with Mr. James Colson, his son, to whom, father and son, we are indebted to a pleasant passing away of a couple of hours.

The orchard presents 216 trees, planted Feb, 1st, 1861, on a light, sandy soil, the trees twenty-one feet apart. The planting of ordinary seed, and the usual grafting process, with three years constant manuring, comprise the whole of the labor done. The grafts had fruit in the third year of growth, and the trees are now thrifty looking, perfectly healthy, averaging twelve to fifteen feet in height, and full of fruit. Because the trees bore so full, the apples this year are not so large as usual. The varieties known as the June apple and the Horse apple. They have a fine taste, rather too good for the eater to prefer any others while eating them. Yet, in this respect, they are not so juicy as the more Northern apples. They sell from ten to eighteen dollars per barrel in Jacksonville and Savannah. Mr. Colson thinks that about a barrel could have been gathered from each tree, but for the extensive raiding that has been going on, The trees bear until frost, from an early day in June. Only one tree of the whole number planted has died, and the orchard has received little or no attention until recently. The average size of the fruit is not quite as large as an ordinary fist. They have not been molested by any insect. These trees have had fruit every year after the third year after grafting.

The trouble and labor in having a vigorous and remunerative orchard is so insignificant that it seems almost a mystery that there is not one on every farm in Gadsden county. Why, the dumplings that the farmer would have, are worth all the labor. Gadsden county apple dumplings may become famous in days to come! We say nothing of "a little more cider"—that's too tempting—but we ask every sensible farmer to figure out the profits of twenty barrels of apples at ten dollars per barrel, and see if the sum would not be a very acceptable Christmas present of pin money to the worthy dame of the household.

We hope Mr. Colson will furnish the Agricultural Association with a paper, giving the full details of his success in raising apples.—*Quincy* (Fla.) *Journal.*

Commercial Value of Insects.

Commerce brings into the market almost everything that has a being in the water, on the earth, and in the air, from the whale that spouts and foams in the great deep, to the smallest insect that exists in the land. The importance of insects to commerce is scarcely ever treated of. Great Britain does not pay less than a million of dollars annually for the dried carcasses of a tiny insect, the cochineal. Gum shellac, another insect product from India, is of scarcely less pecuniary value.

A million and a half of human beings derive their sole support from the culture and manufacture of silk, and the silk-worm alone creates an annual circulating medium of between one hundred and fifty and two hundred millions of dollars. Half a million of dollars is annually spent in England for foreign honey; ten thousand hundred weight of wax is imported into that county each year. Then there are the gall-nuts of commerce, used for dyeing, and in the manufacture of ink, etc., while the cantharides, or Spanish fly, is an important insect to the medical practitioner. In this way we see the importance of certain classes of the insect race, while in another view, the rest clear the air of noxious vapors, and are severally designed by nature for useful purposes though we, in our blindness, may not understand them. *Ex.*

Keeping Grapes Under Ground.

Many years ago while in the nursery business, a customer wanted some vines of me and while they were being dug up he asked me if I had kept any grapes over winter. This was in March. Of course he got a negative reply. Well, said he, when I come next week for trees I will bring you some along. The thing seemed but a joke at the time, but of course I thanked him for the offer. True to his promise, when he came a week or ten days thereafter, he brought me some. Not a few berries as might have been expected, but at least five pounds. They were Isabellas and Catawbas, perfectly plump, sweet and fresh, although most of the berries had dropped from their stems. With the exception of a very slight earthy taste, they were certainly excellent.

The question of course, was asked, how do you keep them thus? The reply was, that in the fall as late as cold will admit, they were gathered in a clear day when perfectly dry; a box about eight inches deep was taken; a layer of green leaves was taken from the vines and laid on the bottom; on these a layer of grapes, then a layer of leaves again, until the box was full, finishing with a layer of leaves. Put the lid on tight and bury deep enough to escape the frosts of winter. Of course it must be where water cannot settle into the box.

The stems of those grapes were quite fresh when given to me. The man told me his father-in-law had kept them thus for years. —*Correspondent Grape Culturist.*

Sheep in the Orchard.—A writer in the *Western Rural* says: "Some years ago, in answer to our inquiry through an agricultural journal, one farmer stated that he had pastured an orchard with sheep for several years. When he first turned them in there was so little growth that he could not cut a graft from the orchard, there being no recent growth of sufficient length and thrift to furnish scions. In three years' time the trees improved materially, making from a foot to eighteen inches of new wood every year. Another reported that sheep pastured in an orchard for two or three years, made great improvement in the fruit. Neither spoke of any injurious effect on the flock.

We have pastured sheep in an old orchard more or less, for two years past, and to its manifest improvement. The grass is better than before, and the trees have a more thrifty look. As to the flock, they have done better than usual. This we attribute in part to changing them from pasture to pasture, frequently, and to the liking they have for their orchard pasture, especially in the hot season.

Orchards often suffer from the want of grazing. They get overrun with weeds and briars, as they will not when sheep are kept in them a portion of the time."

For the Western Pomologist.

Letter from New Hampshire—Fruit, Cider, Crops, etc.

WARNER, N. H. }
September 13, 1870. }

FRIEND MILLER:—Presuming a few lines from a resident of your native State would be acceptable, I here jot down a few items, mostly agricultural. The month of June was unusually warm, and we had sufficient rain to put our farm crops in a forward and promising condition, till sometime in July. Since which time we have been experiencing the most severe and long continued drouth within the recollection of our oldest people.

The hay crop upon an average, fell short about one-third compared with previous years, and for lack of rain, there will be little if any second crop secured, as is usually the case in more rainy seasons. Corn on our sandy plains (and you know what they are) upon hundreds of acres, has been harvested for fodder—it didn't go to seed. But upon the more moist and loamy hill farms, and upon the deep alluvial soils bordering our rivers, the yield is nearly an average, extra sound, and much of it already harvested. Our grain crops suffered some for lack of seasonable rains, but still is better than could have been expected considering the heat and drouth. I think potatoes will be the lightest of all our farm crops.—The early Rose seems to have generally done the best. Where planted early it obtained a good size before it suffered for lack of moisture, while late varieties, and late planted are mighty small and few in a hill. The western potato bug has not yet given us a call Hope it will not, for of late years, the potato, here, has had a host of ills to contend with compared with the time when I was in my *teens*.

Fruit and berries, both cultivated and wild, have been abundant, though in some instances have suffered in quality for lack of rain. There has not been such an abundant product of apples here since 1855. I think for lack of cider mills and barrels for cider large quantities of apples must be wasted, especially the poorer quality, and our best varieties must sell at a very much reduced price of the past few years. Pears, plums and peaches are unusually plenty—and very much less wormy than for years back. Grapes are ripe some three weeks earlier than usual. Our people are going quite largely into the cultivation of small fruits, and generally where properly managed they have been quite successful. The drouth has been hard on our wells, springs and streams; thousands of these are now dry that were seldom, if ever dry before. Some cattle in our hilly out pastures have perished for lack of water, and in thousands of pastures the cattle could not be sustained if they were not fed night and morning at the barns.

Our Census returns show some decrease in population during the past ten years in the "Old Granite State." But this decrease has been caused mostly among the rural population in the rocky, hilly towns on the high lands between the Connecticut and Merrimac rivers. You are familiar with many of these towns, and no doubt are not surprised to learn that so many of the people of these towns have "vamosed the ranch" and sought new homes in the far West, and in our flourishing manufacturing and seaboard cities. Our people are not content to "live so far off" as they were in the early settlement of our State. But notwithstanding the bad look which this decrease of population has—we, that stick by our old homesteads "still live,"—and are going ahead, and are prospering. And whatever may be thought to the contrary, we find it a good State to reside in while thousands upon thousands of our people have found it a good State to emmigrate from, and I trust, friend Miller, you are of that happy number.

LEVI BARTLETT.

Hale's Early Peach.

For some years after the introduction of Hale's Early Peach, it gave great satisfaction to cultivators, but of late it has rotted so badly in many localities, that it has been stricken from the list of reliable sorts. It would appear, however, from the experience of others, that upon a light, sandy soil, with little or no cultivation, it still maintains its old popularity. On the light, sandy soil of Georgia it is still productive and healthy.

Mr. E. A. Riehl, a Southern Illinois peach grower, says in the *Journal of Agriculture*:

"Last year I sowed my peach orchard to clover, and this year made a hog pasture of it, so that in reality it has not been plowed for two years, and I had a splendid crop of Hale's, which did not rot any more than any other sort. Last winter there was a certain fruit grower at my house over night, and in talking over fruit matters, he stated that last year he had some Hale's in bearing—one part of the orchard being in oats and the other part being cultivated, and those in cultivated ground all rotted as usual, while those in oats ground did not. And just now comes to hand the *Gardener's Monthly*, which noticing what the *Journal of Agriculture* has said about Hale's Early, gives the following: "Mr. William Parry, of Cinnaminson, N. J., had an orchard all of this variety rot so that he abandoned it as not worth culture; when, lo! for the last two years, amongst the weeds and grass of neglect he has had wonderful crops."

Now, I should say, here is evidence enough to confirm my observations: 1st. The Hale's Early rots worst when cultivated, when young, and worse on rich than poor land. Therefore, I should plant on land not very rich, cease cultivating as soon as of bearing size, and prune as little as possible. When so treated, I am satisfied it is one of the most profitable that can be planted. The first that I shipped sold for twelve dollars per bushel in Chicago, while now peaches are selling for from one to three dollars. It is also, I think, the hardiest peach we have. It will stand the winter's cold as well as any, and late spring frosts better than any other. It is the only sort that has this year given me a crop. In quality it is as good as the best, and so well am I pleased with it, that if I were to plant 2,000 peach trees (and I would if I had the ground), I should plant 1,100 of Hale's Early.

BLACKBERRY PLANTATIONS.—A correspondent of the *Country Gentleman* presents the following evidence in support of an open exposure to the north to insure good crops of fruit:

Mr. A. M. Purdy, page 518, speaks of the blackberry as being affected by location, with respect to temperature, a low, sheltered spot having its fruit "dried up," and some of it "scalded," while the opposite character of no shelter, and wind to reach it, grew a "fine crop."

Exactly the same is the case here. A berry lot—wild berry—sheltered by the woods from the north and the west, and lying declined to the south, has its fruit, some of it dried and some as if it were scalded.

Exactly opposite this, on the other side of the valley, the reverse is the case. Here is a berry lot declining to the north and surrounded on all sides, except the north, by woods, with occasional trees in the lot. Not a berry in this field did we ever know to dry or get the "scalding" effects of the sun. It is cooler, much cooler, and more moist than other berry lots, and the best of all the writer has ever visited, and he has visited this for many years. So healthy and large does the fruit grow here—and every year—that it is denominated, by way of eminence, "Uncle Joel's Berry Lot."

It has long since been proof to me that the blackberry wants, not a hot sun, but a cool, rather cool, moist place. It wants sun to sweeten the fruit. The extremes must be avoided. Then if there is a sandy soil of *depth*, the berry will grow."

TWIN PEACH BLOSSOMS.—A correspondent of the *Scientific American* says that a curious *lusus naturoe*, or rather a law of agricultural science, was observable in the peach blossoms this year, producing twins or triplets. That this is the result of a general law is evident from the concurrent testimony of widely distant regions. The Agricultural Report for 1866 (page 203) says that peaches are grown with complete success only after the ground has rested for a period of 25 years, during which time the peach district moves from north to south, about 50 miles, and then returns at a single leap, to the place of beginning.

Clay Soil for the Pear.

An experienced fruit grower of Northern Ohio, closes an article to the *American Journal of Horticulture*, on pear culture by saying: "I am more than ever convinced that tenacious clay sub-soils are the best for pear trees, but a tile drain should be laid at least every thirty feet, and full three feet in depth. Last season the United States government surveyors put a range light in my pear orchard, as a guide for vessels entering the river, hence I had to take up a few of my best trees, and in doing so I dug out strong roots three or four feet in depth in the solid yellow clay, and there I had to cut them off. It is astonishing to see what an affinity pear roots have for deep, tough clay; and trees on such soil are generally more healthy and vigorous than on friable soils, especially if the subsoil is sandy or gravelly.

I have concluded to plant five hundred more Bartlett trees, as we find this the most popular market variety, and the earliest and surest for bearing. People know Bartletts better than any other pears, and will pay more for them. Good samples sold readily at home last season for five dollars per bushel; and in Chicago, nicely selected, and wrapped in thin paper, they sold for twenty to twenty-five dollars per barrel of two and a half bushels."

Hogs *vs.* the Codling Moth.—In the Report of the Ohio State Horticultural Society for 1869, the following statement occurs in the report from Mahoning county: "The curculio and Codling moth are very injurious to fruit here. I have two orchards of sixty trees each; in one I let my stock hogs run from spring till the early apples ripen, and never take a crop of any kind from the soil. *This never fails of giving a full and fair crop of apples.* The other is kept in grass, which is mowed annually, and no stock allowed to run, as this cannot be well done. The result is, the orchaad *is not worth any thing for fruit*, and very little for hay'.

Pilfering Fruit.—The *Journal of the Farm* says truthfully—"It is a reproach to the moral character of our people, that fruit is considered lawful plunder. The culturist can have full and exclusive right to his corn and potatoes, and it would be considered infamy to steal them, but, as far as fruit is concerned, he has no exclusive right to it, when a certain class of biped pilferers surreptitiously lay claim to it. From infancy upwards, our people become inured to pilfering fruit, and it is a fixed idea that there is no harm in stealing as much fruit as the pockets will hold, but when many pockets are filled, it is a serious loss to the owner of the fruit. Children should be taught to respect their neighbor's property, by which means this growing evil might be abated.

The Flower Garden.

Fall Work in the Flower Garden.

Autumn is the time for planting many very desirable flowers. Nearly all the hardy Bulbs must be planted during autumn, and October, in this latitude, is the best month for the work. Many Tubers are quite as certain to do well also, if planted in autumn, still the planting of these may be deferred till spring. Bulbs and Tubers are sometimes confounded, but a familiar example will show the difference. The onion is a "Bulb"—the potato a "Tuber."

SOIL AND HOW TO PLANT.

The soil for bulbs should be made rich with well rotted manure, and leaf mould—the whole well mixed, deeply spaded, and finely pulverized before planting. It is well to do this two or three weeks before planting, and have the soil well settled and packed by rain. Bulbs will flourish in almost any kind of soil if made rich enough, dug deep and well drained.

Bulbs of large size should be planted from three to four inches deep—small ones, from one and a half to three inches—reckoning depth from the top of the bulb when planted. They must always be so deep as not to be easily uncovered by rains. In aid of this, and to guard against the lifting power of frost, tread or pack the bed hard after planting. Rows, one foot apart and nine inches in the row, is a medium distance for single bulbs of most kinds intended to be taken up every fall for re-planting. Large ones like Crown Imperials, Tiger Lillies, etc., should have more space, and so do all if intended to stand several years in the same bed without dividing and re-planting.

WHAT TO PLANT.

The Crocus.—This is a very pretty little bulb, hardy and easy of cultivation, and among the first flowers of spring—sometimes blooming along-side a melting snow-bank. Its colors are varied and often beautifully mixed. It is a great bloomer and stands the hardest frost when in full flower.

The Tulip is a great favorite; its colors are almost infinite and their blending delicate beyond the power of imagination.

Duc Van Thall flowers early in April, during the continuance of severe frost.

The Tulip, with its goblet-shaped flower cups, makes a magnificent show on its stems two or three feet high. To have fine tulips no pains are to be spared in cultivation. Its tall stems should be supported with stakes.

The Little Grape Hyacynthe is cheap and multiplies rapidly.

The Narcissus family contains many desirable and early blooming plants, and many of them extremely fragrant. The polyanthus, Dafodil, Jonquil, etc., belong to this tribe. All are cheap and desirable.

The Tiger Lily, Orange Lily, the Native Lily, and many others are all cheap, showy and desirable plants.

Crown Imperials are extremely hardy and quite showy during the hardest frosts of spring. They appear best planted in clumps, and should occupy the least frequented parts of the garden or the lawn.

In Nov. No. we will give directions for protecting the beds.

How Lilies are Popagated.

The Japanese lilies are so hardy, as well as beautiful, that they should become as common as the Turk's Cap and Tiger Lilies.—They are now all moderately cheap, and if one only has a bulb or two to start with, the stock may readily be increased. If left to themselves, the bulbs become clumps by natural subdivision, but this is a slow way of multiplying them. If a lily be taken up in autumn, after the leaves have withered, there will be found upon the stem, just above the old bulb, a mass of small bulbs intermingled with roots. A dozen, and even more, are frequently found. The little bulbs may be removed and planted out separately, or the stem to which they are attached may be cut off just above the old bulb, and set out with the cluster of bulbs and roots attached. They should be covered the first winter with a few inches of litter. The next season they will make strong bulbs.

Another method of propogation is from the scales, of which the lily is mostly made up. These scales are attached to a solid portion at the base of the bulb, and they are broken off close to this, it being important to get the very base of the scale. The outer scales of a bulb may be removed without injury to it. Indeed the majority of those offered for sale by florists have first been deprived of their outer scales, which makes the bulb look better, and at the same time gives them material for propagation. The scales are set out in an upright position in boxes of sandy compost, pressing them down anto it until the point is about level with the surface. The boxes are to be placed in a room where they will be at abont the temperature of 50 or 60 degrees, and kept just moist enough to prevent shrivelling. In about two months a small bulb, sometimes two will be found at the base of each scale. In spring the boxes are plunged in the open ground, and the bulbs allowed to grow all summer; in the following autumn cover them with litter, and next spring if too thick they are to be planted out separately.—*Ex.*

Red Spiders on Fuchias.—A correspondent of the *American Agriculturist* says:—"Fill a barrel nearly full of water and slake in it about a quarter of a peck of lime, and let it stand until perfectly clear. Hold the plants affected in the water (bottom up) for about five or ten minutes, then wash them with pure water."

Instinct of Plants.—Hoar, in his treatise on the vine, gives a striking exemplification of plants. A bone was placed in the strong, but dry clay of a vine border. The vine sent out a leading, or tap-root, directly through the clay to the bone. In its passage through the clay, the main root threw out no fibres; but when it reached the bone, it entirely covered it, by degrees, with the most delicate and minute fibres, like lace, each one sucking a pore in the bone. On this lucious morsel or marrow bone would the vine continue to feed as long as any nutriment remained to be extracted.

The Vineyard,

A Few Hints on Wine Making.

It has been our fortune, during a practice of nearly twenty years, to serve an apprenticeship in American wine making, which commenced at the rudiments of the art; and we well remember how careful we would be to pick our grapes, to get them thoroughly ripe, to keep out all dew or rain, and the doleful looks we would cast upon our imperfectly ripened grapes, as we did not think it possible to make *good*, drinkable wine from them. But fortunately those days are past, and we often think of them with mingled pity and amusement. Thanks to the teachings of Gall, Chaptal and Petiot, we can now make good drinkable wine every year.

But, during this practice, we found that different grades require different treatment, almost as varied as the grapes themselves. To elucidate this we would once more briefly allude to the definition of *bouquet* and *aroma*, as already explained in the "Chemistry of Wine." by Mr. Frings.

Aroma is the flavor peculiar to the variety of grape: for instance the foxy flavor so very perceptible as to be disagreeable in some of our grapes, especially the Northern Muscadine, Perkins, Hartford Prolific, and even in the Concord and Catawba.

Bouquet is developed during fermentation by the action of the alcohol upon the acids. If the grape contains but little acid it can not develop much bouquet, nor can it be developed if the must does not contain sufficient sugar to be changed into alcohol during fermentation. These simple facts we must keep before our eyes, as they are the most important guides in wine making.

We have some varieties of grapes which will make so-called *aromatic* wines: that is, the aroma of them is most pleasant when fully developed, which it can only be by thorough ripening of the fruit. In this class we can include the Creveling, Cynthiana, Arkansas, Hermann, Norton's Virginia, and perhaps Clinton. We should therefore let these ripen thoroughly, if we intend to make the best wine they can produce; and for this reason we think, those living in northern latitudes, with shorter summers, will never be able to make as good wine from them as those living in latitudes where they can thoroughly ripen and shrivel on the vines.

Other varieties we have which contain aroma *in excess*, and where it is desirable to have it in as slight a degree as possible, and to develop bouquet instead. We can best attain this by gathering the fruit when not so ripe, as the aroma is not so fully developed. Should the must not contain sugar enough it must be added; and should the grape contain a surplus of acid, we can ameliorate by adding water.

Among the varieties which will make the best wine, if treated thus, we will name the Concord, Cassady, Catawba, Cunningham, Delaware, Diana, Hartford Prolific, Herbemont, Ives, Louisiana, Maxatawney, Martha, Goethe, Massasoit, Wilder, Lindley, Agawam, Merrimack, Salem, Rogers' Nos. 8 and 12, Rulander, Taylor and Telegraph.

This may appear rather startling to some of our readers, and for a long time we believed that it was necessary to ripen all grapes thoroughly to make the best wine from them. But "experience is the mother of wisdom." We never made better Concord, Catawba, and Herbemont, than in the season of 1865, when the summer was somewhat similar to the present one, when no grape ripened thoroughly, and our Concord must did not average more than 65°, Catawba not over 60°, and Herbemont not over 75°. By adding a gallon of water to the gallon of must, and sugar enough to bring the whole mixture to 80°, we made a wine which we have not been able to surpass since, nor come up to it. The Herbemont was pronounced by the best judges in the country the finest American white wine they had yet tasted. Our Norton's Virginia, however, made that season, though a fair article, was much inferior to the vintages of 1866 and '67. Delaware made, that season, from half ripe grapes, was valued at $6.00 per gallon within six weeks from the time it was made. It was a perfect wine then, clear and fine, and with an exquisite bouquet. The Concord was without the offensive foxiness, and contained acid enough to be very palatable wine: the best we have been able to make of that grape since.

In wine making we must always remember, that we have *no perfect* grape as yet; that grapes will, in different seasons, yield entirely different products, and that only *thinking*, *practice* and *experiments* will teach us how we can best improve it.

In making the wine we think it best now, after our experience of last season, to ferment each variety on the husks until the wine becomes perfectly clear and finished. Fermentation will draw out all wine-making ingredients, as acid, sugar, tannin, flavor, etc., and the husks be perfectly tasteless. We shall therefore leave it in the fermenting vats until the beginning of December, then draw it off and press the husks. We can not give the proportions, as they will vary with the variety of grape we have to deal with, and its inherent qualities.

Fermentation should be rapid and thorough, and the fermenting room be kept at an even temperature of 65° to 70°. Should it not be warm enough, the room should be heated by a stove. Beware of cold cellars for young wine; they will retard fermentation, and you will have continued trouble. Your wine should be clear, and all the sugar changed to alcohol, in three months from making.

We hope we need not till our readers that all their utensils, pails, vats, casks, etc., should be perfectly clean and sweet. A sloven has no business to be a grape grower, much less a wine maker, and does not deserve success.

We can, of course, give only *general* rules, but we hope that they will be sufficient to enable all of our readers to make their wine. They need not expect that they will reach the climax at once; it will take long years of patient study and experiment to produce the *best* wine a grape is capable of yielding. We do not pretend to know *all* about it; on the contrary, the more we learn we see only the more clearly how little we yet know. But we have made some good wines in our day, and do not fear any more that we will make a really poor article. If these hints will enable our readers to do the same, we shall think ourselves richly repaid; and if they will, now and then, send us samples of their skill, we will try and give them our opinion and advice about it.—*Grape Culturist.*

Hamburg Grapes in Pits.—A correspondent of the *Gardener's Monthly* says:—"Over thirty years ago a friend of mine in the nursery business raised Hamburg Grapes in an old fashioned pit of the day, generally employed for raising melons and cucumbers, he used for propagation, etc. It was sixty feet long, divided into compartments of about ten feet square, a lean-to and double sash. He had a walk at the back about three feet, so as to command the pit; along this he trained his vines on rafters, horizontally. Always had an unfailing crop for private use; gave them but little attention, and pruned in fall or spring, when he had time.

These old pits have gone out of use, but believe me, they did much better service than any modern ones I have seen. The compartments were filled with the manure as it came from the stable daily; he had a supply of peat and mold for all purposes. Made plenty of money, and did a large business; he died since I came to this country, worth over £50,000.

Surplus of Fruit.—The *American* says: The New York market was overstocked with Black-caps this season, and they were sold at four to six cents a quart, which affords the grower no profit. It is estimated that it will cost about 10 cents per quart to raise and pick them, and when they sell at less than 12 cents nothing is made on them.

It was supposed several years ago that the great city of New York could never be overstocked with small fruits; but the experience of 1869 and '70 clearly show that it can be overstocked, and that it would not be wise to make many new plantations of small fruits of any kind, to be sold in that market.

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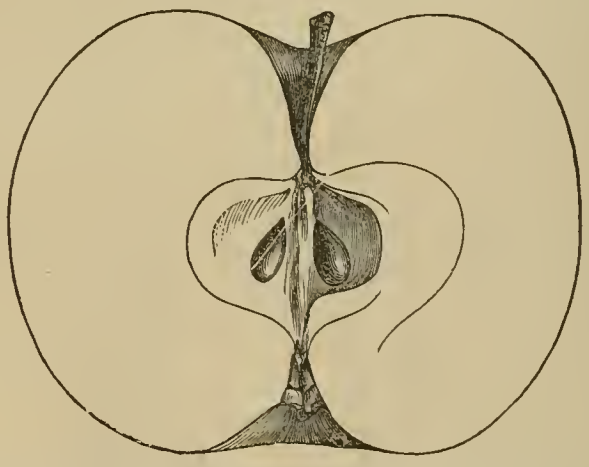

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The Western Pomologist

Pomology, Gardening, Forestry, Horticulture, Rural Architecture, Bees.

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MARK MILLER,
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The Season and its Duties--November Work.

Summer has departed, and stern winter draws on apace. Tree, shrub and vine are now at rest. Their season of circulation and growth is past, and all must sleep until again stirred into new life by the genial warmth of spring. During this long season of rest, trees, plants and vines are subject to serious evils, and often fatal ones, but from which a little care and labor rightly applied just now, will save them. Hence, much of the future success of the Western horticulturist depends upon the proper performance of his November work.

Against the ravages of mice, often so destructive in the orchard and nursery, nothing is more effectual, or safe, than a conical mound of earth, a foot or so high, thrown up around the stem of the tree. It also affords protection to the collar and roots of the tree. The prime cause of bark-bursting at, or near the ground, results from the sudden extremes of winter. Protect the roots and stem with earth, and this danger is obviated. A nurseryman in Washington county lost 15,000 yearling apple trees by bark-bursting last fall, caused no doubt by the severe freeze in October. Had furrows been thrown up previously, both ways, to the stems of the trees the owner would not have suffered that loss.

Take down tender grape vines from the trellis and slightly bury in earth, or cover with straw—earth is preferable. Though hardy vines, and the Doolittle and Philadelphia raspberries stand winter, and fruit liberally with no protection—all will do better with it. The raspberry and blackberry should be well mulched with coarse manure, to the depth of four or five inches. The roots of these plants range near the surface and should be protected from the changes of weather in winter.

One and two year old nursery trees should be banked up, by throwing up a furrow on either side, for the winter. This is indispensable to the safety of the trees. If not done, nineteen chances to twenty the trees will be lost.

Make cuttings of currants, goosberries, and grapes. Cions for root or top-grafting should also be separated from the parent stock early in December. All are more vigorous taken off early than if left longer exposed to the alternations of heat and cold. Cions for top-grafting in spring, and currant cuttings, are better buried in the earth for the winter. Cions for winter use and root grafting, pack in damp saw-dust.

Trees received in a frozen condition should be buried without delay, out of doors in the cold earth. No matter how cold the weather may be, dig a trench and bury at once—working the cold earth in among the roots as thoroughly as if transplanting the tree for life. Never put frozen trees into a cellar, as is often recommended; that will not save the roots, however moist and cool the cellar may be. The roots must be excluded from light and air while the frost is coming out.

The asparagus and pie-plant beds will give an earlier crop of fruit if well covered with straw or coarse manure.

PROTECTION OF THE STRAWBERRY.

The strawberry patch should be covered in winter with coarse straw or prairie hay—the former is preferable. No kind of litter, such as decayed leaves, half rotted manure, etc., (often recommended) should be allowed. Such material—especially if a little too freely used—is apt to pack down in damp or wet weather, and thereby injure the crown of the plant. Nor should the straw be applied prematurely—not before the ground has been frozen to the depth of three or four inches—then spread on evenly, and in such quantity as to insure a depth of about three inches when well settled. Under such a covering for the winter, the plants will be safe. The strawberry is perfectly hardy, requiring no protection from frost. It is the alternate freezing and thawing of the ground, high winds, etc., that is to be guarded against during the winter and early spring months. Keep the ground frozen—that's all.

Fall Transplanting—Burying Trees.

The question is often put to us, "Do you approve of transplanting fruit trees in the fall?" We say positively, *no*, not in this section of country. In the Middle States it will do, but not in a bleak, cold, snowless country like this. But we do approve of taking up all kinds of deciduous trees, (intended for spring setting) in the fall, and burying them for the winter, for various reasons. All tender trees, and even those hardy, as many varieties of apple, pear, plum, and cherry, will start off more vigorously, and make at least a third more growth, if taken up in the fall and rightly buried, root and branch, through winter. Such trees come out in the spring as vigorous and fresh as when lifted from the ground in the fall, while those standing out must inevitably lose more or less of their vitality, if not killed outright from exposure to the extremes of winter. We speak from large experience, having practiced burying fruit trees of many sorts for many years past, and the trial in all cases has been most satisfactory. It is surprising to us that tree planters are so slow in adopting this practice, that so few obtain their trees from the nursery in autumn, rather than defer it till spring.

Late fall—say from the last of October to the 20th of November—is usually the best time in the season for taking up trees for burying. The trees should be divested of their leaves, either by dropping in the natural way, or by hand stripping. It is better that the leaves drop naturally, than to be forced off; for so long as the leaves retain their hold the new growth of the tree is ripening up. Heeling in, that is, to bury the roots and leave the tops exposed, *will not do.* Such practice is sure to result in injury of the tops, if not in serious loss. Bury, *root and branch*, in a sloping position with the roots two feet deep, well and thoroughly packed in moist earth, and tops just covered. If trees thus cared for in the fall are taken out and properly planted in spring, such practice is uniformly attended with the very best results. Try it and see.

Propagation by Slips and Cuttings.

In the transactions of the Iowa State Agricultural Society for 1869, we find a somewhat elaborate essay on Horticulture and Floriculture, by John Hague of Clinton. Though the writer presents nothing new to professional horticulturists or florists, the novice and those of limited practice in these arts will find more or less instruction in some portions of Mr. H's article. For the benefit of such of our readers, we present the following synopsis of that portion of the essay devoted to propagation by slips and cuttings.

A SLIP.

"The art of propagation from cuttings, &c., extends over a wide range of the plants in cultivation, and where it can be done is the best way of raising plants. There are many things that cannot well be raised from a cutting or slip, but nature has generally made a provision that where a plant cannot be raied from seed, cuttings, or slips, it can be raised from layers or off-shoots. The strawberry is generally raised from the runner, but can also be raised from the seed, and it is from the seed that new varieties are produced, and by a process that shall be explained further on. A cutting is one thing and a slip another.

A CUTTING.

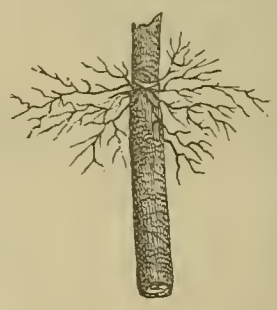
A cutting is made by taking a shoot of either new wood or a twig that has recently ripened, such as a gooseberry twig, a new shoot of a currant that has been grown the present season, but has got well ripened. Take these and cut them just beneath a joint, as shown in the figure of a cutting. It is important to cut them just beneath a joint, for they callous quicker at a joint, that is, they form the wart-like incrustation from which the roots come that are to perfect the future plant. Some will put in cuttings with half an inch or more stem below the joint, but this is a poor way to make cuttings, for I have raised some millions both ways, and the plants raised from those cut near the joint always did the best; and it is natural they should do so, for the roots in one case come out of the sides of the stem, while in the other they come out in the natural position at the bottom. The slip is made by either cutting or drawing off the young twigs just where they join older wood.

There are two kinds of cuttings or slips, namely, hard and soft wood cuttings. The hard wood cutting is that of ripe wood, such as hard wood of the grape vine in the fall; the other, the tender, soft cuttings or shoots of dahlias, verbeans, geraniums, begonias, tradessanties, and many sorts of vegetables—such as the sweet potato, the cucumber, the melon, and even the cabbage can be propagated from a cutting; also the potato, which latter I have found the best way to propagate new varieties, as cuttings made of potato stems produce better that cuttings made of sets, as they are called. This of course takes time, for potato plants raised this way have to be transplanted like cabbage or other things. Soft cuttings are mostly raised in what is called saucer way, that is, a dish is partly filled with sand and then filled up with water, into which the cuttings can be put as thick as they will stand. This way of striking requires pretty strong heat and is seldom practiced by good propagators save in the spring and summer months, when there is plenty of sunshine; and anyone practicing this mode of propagation must not allow the water in the dishes to be all evaporated before they put in fresh, as one hour's dryness will be enough to ruin the cuttings. By the above method I have raised in from four to ten days, thousands of cucumber and sweet potato plants when I have been short of such things. Hard wood cuttings are struck, that is, made to strike out roots at varies times of the year; that is, when they are struck as gardeners use the term.

The grape vine is best put into the ground in spring, as soon as the frost has been out of the ground, so that the soil has begun to warm after its winter's rest; and the best kind of cuttings are those of last year's growth, and the propagator must use his or her own judgment upon the length of the cutting put in. I have found that three eyes to a cutting are plenty. To those who don't understand the term eye or eyes, used in gardening, I may explain that the buds upon the sides of a twig or shoot are called eyes, as seen in the wood cut.

Gooseberries and currants are best raised from cuttings in the fall of the year, say about the middle of September, and those wishing to have trees that will bear large fruit should strip off the buds at the lower end of the cutting, or that part which goes into the ground, so that the sap can flow through one stem and not produce a number of stems perpetually from below the ground, which not only renders such things unsightly but causes them to produce inferior fruit.

In the case of gooseberries, currants, and many other things of a similar nature, five or six eyes or buds are enough to have upon one cutting, and it is best not to put them (that is the cuttings) too deep in the ground, for if they are put too deep they not only take a long time to strike root, but will root a long way from the bottom, that is, near the surface of the soil. This not only makes a bad plant, but is liable to produce decay in the plant even after it has struck root, for it cannot callous in a proper way until the part below the roots is decayed. It is better to put cuttings in a sheltered place than where they will be blown about by wind, or exposed to too strong sunshine. The best exposure for out door cuttins is the east, where the morning sun will warm the ground, but the mid-day sun have its rays broken or be off them.



Greenhouse propagating of either slips or layers, is another thing from out door raising, and requires in many plants nice management. The principal thing to aim at is to have the top of the cutting at least ten degrees of heat colder than the bottom, or even more than that, for too strong heat at the bottom is fatal to good propagation. A propagating bed run steadily at seventy (70) degrees, with the house heated up to fifty-five (55), is plenty; the object to be gained is to make the cutting or slip root before the top begins to grow, and this can only be done by keeping the top of the cutting cooler than the bottom.

Gardeners and nurserymen, prefer to

strike the most of their stock in the winter, when they have the convenience of a propagating house, or green house.

Some genera, or families of plants vary much as to their capabilities to be raised from cuttings—that is, individual plants of the same family of plants cannot be raised well from cuttings or slips, and in that case they have to be raised from layers, grafts, budding or inarching. For instance the family of roses, many of them can be raised from cuttings or slips, such as the Hybrid Perpetuals, China, Bourbon, and Summer roses. While the moss and many of the climbing roses have to be raised from layers. The old style of laying roses is performed as in annexed cut; that is, a shoot is bent down

and a cut is made half way through the shoot, just behind a joint or bud, and then the part is covered with earth, and held in its place either by a peg or stone, and then left until it has sent out its roots. There is another way of laying, which is very good if there is a convenience to grow the plants after they are struck, and is a quick way to raise a large lot of moss and other favorite roses. The way to layer in this manner is to lay a shoot in the old way, and make a cut at each point about half way through the stem, then to twitch in a gentle manner; a piece of fine copper wire around each just behind the bud, near the part cut, then bury the whole stem in earth or moss, and every joint will shoot up a young plant, which can be taken off when sufficiently rooted. Layering out of doors can be done in July or August, just as soon as the wood is ripe enough. The best kinds of cuttings of roses are what are called Blind Shoots, that is shoots that have put out no rose buds in the season, as every one who has had any experience in rose growing, know there is always a lot of short shoots which produce no flower buds, and these are the blind shoots.

For the Western Pomologist.

Fruit-Growing in Iowa.

I write at a very discouraging time in this business in Iowa. For three years past there has been a failure in the apple crop. In 1867 we had a good crop. It cannot be expected that we shall have a large crop from the same trees two years in succession. In 1868, we had a light crop of fair apples. In 1869, the excessive wet ruined the crop. In May, the appearance was for a good crop; but the excess of rain through June and July so damaged the trees, that much of the fruit dropped off, and what remained was miserable, small, gnarly things, with a few exceptional varieties. My recollection is that the fair varieties were Duchess of Oldenberg, Warfield, Benoni, Kentucky, Goff, Maiden's Blush, Peach Pound Sweet, Lowell, Fall Orange, Cracking, Striped Pippin, Jonathan, Domine, Wagner, Hubardston, Nonsuch, Ben Davis, Willow Twig. These varieties stood the excess of wet tolerable well Those badly affected were Red June, Fall Wine, Summer Pearmain, White Rambo, Striped Rambo, Roman Stem, Rome Beauty, Winter Sweet Paradise, Tolman Sweet, Winesap, White Winter Pearmain, Little Romanite, Yellow Bellflower. The Fameuse and Jannett were some affected, but not as bad as those named.

We may therefore infer that some varieties will stand moist ground better than others, and in setting the orchard, put the latter class on the dryest land; and where the orchards are now standing with these varieties, be careful to ridge up the land and give good surface drainage. Last year, in August, I was in a large orchard in an adjoining county, which looked bad, the trees looked rough and unhealthy, and the leaves were falling off; the owner was much discouraged, and said we could never raise apples in Iowa, for his orchard failed every year. On examining the situation, I saw that the land, although high and not many rods from ravines and rolling land, that particular piece was too level, and the subsoil held the water. I said to the owner, your orchard needs drainage. Why, he said, "there is no water here." He little knew how much water was retained in the soil and subsoil about the roots of his trees. It simply needed drainage, either with tile, the mole drainer, or high ridging up towards the trees by plowing.

Well, the rains ceased in 1869, about the first of August, the trees took a late growth, and the severe freeze of the 17th of October killed many small nursery trees, and damaged nearly all the orchard trees more or less, so that although they bloomed full the following Spring, the small twigs had not vitality enough to start the fruit, and nourish its growth, and it blighted and fell to the ground.

So this is the third season in succession that we have had a failure of the apple crop, not so much the fault of the trees or the climate, as the peculiarly and unusually unfavorable freaks of the seasons, which will not be likely to occur again soon. I have determined not to get discouraged at the extreme wet of last season and the extreme frost of last October, to spoil the crop of this year, but hope for a good crop next year.

There are many other fruits besides the apple that every farmer ought to have; strawberries, raspberries, cherries, currants, and grapes. With all these varieties, we have a supply of fruits the whole year. Besides, the canning of the berries has become so common of late, that every housewife is ashamed to be without some of these delicious fruits for company and for sickness. When a child, how I loved a good apple! How I loved to go out in the fields and woods picking berries! Are the appetites of children different now? Then, farmers, plant plenty of fruits, and make the boys and girls weed, and hoe, and take care of them. Mothers, can plenty for the table, and learn your daughters to do it up nice and careful, so it will keep until berries come again.

I find canned grapes are about as good as any of the berries. Take the grape in the fingers and squeeze the pulp out of the skin. Scald the pulp slightly, and pass it through a sieve to take the seeds out. Save the skins and put them in with the pulp, and cork it again slightly. Add a fourth pound of sugar to a pound of fruit, and can while hot. Physicians say this is the best fruit for invalids. They often call on my wife for a can of grapes.

Pears.—Set them on dry, clayey subsoil land. A north or eastern declivity is best. I this year set a pear orchard, and intermixed evergreens, one for every three pear trees. This was by Capt. James Mathews' suggestion, and I had heard it before. Bartlett, Flemish Beauty, Seckel, Beurre d'Anjou, is the extent of my list. Other fruits, Wilson and Greene Prolific Strawberry; Philadelphia Raspberry; Early Richmond and Late English Morello Cherry; Hartford Prolific, Concord, and Clinton Grapes. Now there is nothing new nor wonderful in this list, unless it is that it contains no *humbugs!*

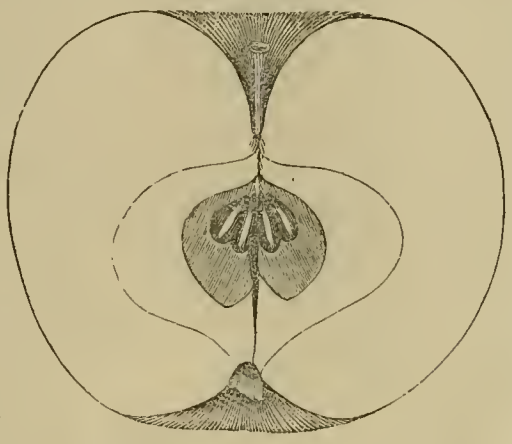
SUEL FOSTER.

WHEN IS A DRIED SCION DEAD?—"A letter was received from Van Mons, of Belgium, in which he stated the curious fact that he once successfully grafted scions sent him from New York, which had been two and a half years in reaching him, and asserted the doctrine that a scion is never too old, or, rather too dry to succeed, provided it had been cut from a living tree, or from one that had not perished by a natural death; and that artificial death, such as that occasioned by deplantation, does not injure in the least the excellence of the scion."—*R., in Journal of Horticulture.*

SUCCESSFUL PEAR CULTURE.—A very successful cultivator of the pear in New Jersey grows cabbage, celery, potatoes, currants, tomatoes, etc., in the intervening space, until the trees attain a size so as to cover the ground, when all cultivated crops are abandoned and the ground mulched heavily with salt hay. It is estimated that one row of thirty trees will yield fruit to the value of $600 the present season.

A New Seedling Apple.

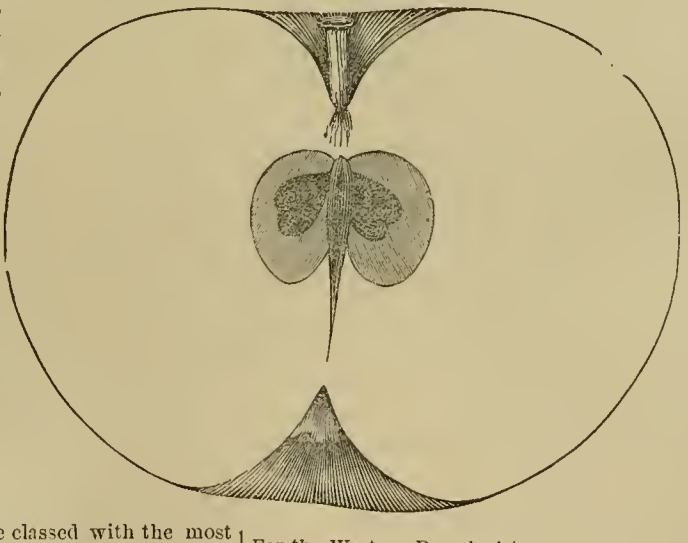
Mr. D. B. Clark, of Council Bluffs, sends us a few seedling apples, and which are represented by the accompanying engraving. Cavity deep, narrow, russeted, basin medium, calyx small, closed; stem short, slender; skin yellowish green with faint blush on sunny side; flesh greenish white, tender and moderately juicy, acid. We find it an excellent cooking apple, and it is not a bad eating apple from the hand. In a note accompanying the apples Mr. C. says:



"This seedling originated from seed planted in 1855. The tree bore its first crop in 1866—a fair crop in 1867, an increased crop in 1868, and in 1869 about ten bushels, and the present season about seven bushels. Tree very hardy '*Iron Clad*,' a moderate grower, stem 20½ inches in circumference, one foot from the ground, and is a total stranger to the pruning knife. We esteem this apple very highly for cooking. Season, late fall and winter."

"The Hawkins Chief." Weight, 7 1-2 Ozs.

We have received from Mr. Lewis Martin, of Anoka, Minnesota, two seedling apples called "Hawkins Chief" and "Minnesota Prince," the first of which we illustrate:



Cavity shallow, narrow—exceedingly so; stem short, very stout; basin, broad, deep; calyx medium, closed; core small; seeds large, plump, reddish brown; skin uniform, clear, pale yellow; clear of the slightest blush or tinge; flesh rather coarse, brittle, acid; a very good apple. Taking into account hardiness of the tree, size and fair quality of the fruit, the "Chief" may be classed with the most desirable sorts for Northern Minnesota.

The other specimen, "Minnesota Prince," is about the same size and weight, but not so good. Flesh white, tender, lacking in juice, and rather insipid. Concerning the origin of these two apples, Mr. Martin writes us;

"I send you by mail a specimen of the "Hawkins Chief" and "Minnesota Prince" apples. The trees were raised from seed brought from Vermont, and planted by S. Hawkins, nine years ago, in the town of Maple Grove, Hennipen county, about thirty miles north of St. Paul. The trees are perfectly hardy, very healthy, and vigorous growers. These apples were on exhibition at the late fair held at Minneapolis, and were warded the first premium."

For the Western Pomologist.

That Crab-Apple Question.

Friend Miller.—It seems, from the October number of the Pomologist, that I have inadvertently "stirred up" a disciple of Crabdom, by having the audacity to intimate that the people of Council Bluffs might just as well raise *apples* as *crabs*.

I have found in my intercouse with my fellow man, that people generally dislike, extremely, to be told of their faults; but I had but little thought of any real live nurseryman (as I had taken Mr. Raymond to be) attempting to advocate the general planting of crabs, from which to produce a supply of fruit. But Mr. R. says that they grow almost spontaneously with him. True. But what is the fruit after you have got it? *Nothing but a crab-apple after all.* I can recollect some twenty-five years ago, when our native crabs were eaten with a relish, but when we got to raising *fruit*, they were not thought fit to eat. But few are aware of the vigilance, the trials, vexations, and disappointments of the "old settlers" of this part of the State in order to prove, as they have, that fruit (not crabs) could be grown successfully here; and although the present is the first season of our entire failure of the apple, we are far from being discouraged.—As we are without fruit here, only as we buy it, and as crab-raising is so remunerative at the Bluffs, suppose Mr. R. tries shipping us 100 bushels of his famous crabs, and if they don't have to go begging to fetch $1.00 per bushel, and then have more than half of them left on his hands, I will pay all the expense of the shipment. The fact is, we know what fruit *is* here, and you can't fool us with any of your crabs. I would like to hear what Mr. Leonard of Burlington says about Mr. R's crab story.—Do the good people of B. buy crabs in any quantity at "four dollars per bushel," when good fruit can generally be bought at 50 to 75 cents? This sounds a little like a "fish story."

Instead of grumbling at me and calling hard names, as "Egyptian," "Crabridiculer," etc., why don't Mr. R. try to explain away the strange freak (?) of nature of his neighbor, Mr. Sylvester, having plenty of apples, and nice ones too, on a neglected orchard of twenty years' standing? I am afraid I touched Mr. R.'s pocket, (which is generally the tenderest part of a man) in speaking of this crab business.

"Cant raise anything but crabs at Council Bluffs'? Who believes it? How is it that Mr. Adams, our worthy Secretary of the State Horticultural Society, is able to raise hundreds of bushels of apples, two degrees north of the Bluffs, and was enabled to exhibit some 70 varieties of splendid apples at our State Fair? Some "*hocus pocus*" about it I reckon! Now, Mr. Adams is a gentleman, and if you are not too independent to learn, I doubt not but that if you will keep on the "good side" of him, he will tell you all about how you can raise *apples* at the Bluffs as successfully as you now do crabs.

If the growing of crabs is a matter of such great importance, why has our Horticul tural Society never taken the matter in hand and told us what varieties were best suited for culinary, for dessert, and for market purposes. I design planting several hundred more fruit trees in the Spring, and if it is decided that it is the most profitable to plant crabs, Mr. R. would confer a favor on me, and many others, by telling us what varieties to plant, so that we wont have to "go it blind," you know.

Ira Phillips.

Keosauqua, Iowa.

For the Western Pomologist.

The Cotton Caterpillar, Canker Worm, Etc.

Mr. Editor—I have just read the *Pomologist* with much interest. I think every tiller of the soil should take an interest in the circulation and reading of journals of its character, and that each reader should contribute some facts within his knowledge for the benefit of their readers. New beginners in farming and fruit growing readily take hold of whatever promises assistance in their business. Many new experiments are tried, and an opinion of the results published without waiting for the development of facts. I am a young beginner in farming and have taken particular notice of what old planters were doing and saying.

In 1867, the cotton crop started out finely in this vicinity—all went on well until about the 1st of August, when the caterpillar came upon the cotton, and within two weeks there was not a green leaf left upon the stalk. In many fields the green hull of the small balls were devoured and the crop cut off one-half. Then comes out the advice of the learned (?) savans of the agricultural press, telling the cotton planter what was best to be done with the cotton stalks to prevent the return of the caterpillar the next season. There was considerable labor in the burning and destroying of the cotton stalks as proposed. Some labored hard to destroy every vestige of the stalk, while others did nothing—went on as usual—plowed under the old stalks and planted the same ground, and no caterpillar yet. The true character of that destroying pest is not fully understood in this section yet.

I well remember, while living in the North, that a worm, called the Canker Worm, attacked my old "Boss's" apple orchard at a time when the apples were about the size of plums, and within a month there was not a green leaf upon a tree in his orchard of several hundreds of the best original seedling-trees; the worms had devoured them all, and left nothing but the coarse net work of the leaves. The apples withed, and dropped off. Just as the worms had completed their work of destruction, then came thousands upon thousands of small birds. The trees were literally covered, and they apparently devoured the worms. Their stay was short—only a few days: they were called the canker bird. The farmers were fearful that the worms would return the next year, but not so; for I have been informed that they make their appearance every seven years in that section of country, but are not so destructive as they were in 1823. Could the farmer only know for certain when to look for these pests, then he might have a few years of quiet breathing without fear and trembling.

I believe that fruit trees at the present day have many more enemies—insects and disease—to attack and devaste them, than in former years. The cause of all this may be, that once the orchards were mainly seedlings; now they are grafted, or budded, which changes the nature of the tree. I have a few seedling apple trees that bear full every year, and they are large trees, while those grafted are small, and do not fruit every year; besides some of the grafted trees die out every year. The pear does not thrive well in this vicinity. I planted a lot of Dwarf pear trees in 1857, and have grafted yearly on the natural stock, but after one or two seasons of bearing they die. A few Bartletts matured this year; they were very large, and fine flavor. W. B.

Mill'dgeville, Ga.

Storing Winter Apples.

A correspondent of *Laws of Life*, who claims to have had extended experience, is "decidedly of the opinion," that apples keep far better when put into close boxes or barrels, and secluded as much as possible from the air. When thus stored, he says they will come out in the spring, full and plump as when taken from the tree. Many varieties as the Talman Sweet, Spitzenburg, and those kinds that are not considered as long keepers and shrivel badly, will do well treated in this way. I have, he continues, found universally, that they keep better to let them lie without picking over. It is much better to pile them into a large bin across the cellar, say six or seven feet high and four or five feet wide, and cover them up tightly, than to lay them on shelves. I once saw such a bin that a man had kept through the winter. About the 1st of April he thought he would open the windows on the side of the cellar next the bin to let in the air that they might keep better. I was at his place and he called my attention to the fact. Two windows just over the bin were opened about ten days or two weeks, and the apples exactly opposite the windows about one-third rotted for as much as a foot in depth, and the remaining part on either side were not rotted at all. Another instance: A neighbor of mine had about 500 bushels in a pile in a cellar. As they became a little specked he commenced picking over; when about half done, got tired and concluded to let them go. When marketed about six weeks after, found that about one-third of those picked over were not fit for market, while all but about one-twentieth of the others were good. This I have seen in numerous instances. If you wish to try the experiment, make a box as tight as a carpenter can make it, and when picking from the orchard fill it and nail it fast. Let it lie in the orchard till it is in danger of freezing; then put it in the cellar. Put the same quantity on shelves for trial. I am pretty sure one experiment will convince.

Saw Dust for Cut Worms.—A correspondent of the *Journal of Agriculture* writing from Tennessee, states that he has tried on a pretty extensive scale, an application of saw dust around the roots of plants as a protection against cut worm. In no instance has he failed. A hand-ful around each plant it would seem to us of some sorts of wood, might not only be effectual against the cut worm, but endanger the life also of the plant.

The Pecan Nut.

A Texas correspondent of the *Southern Horticulturist*, says:

"Of all the American nuts with which I am acquainted I consider the Pecan to be the best, and much superior to the English Walnut. On the Colorado bottom near Austin, I recently counted the annual rings on a Pecan which had been cut down a few hours previously. It was fifty-three years old, and thirty-two inches in diameter at stump hight. I measured one ten years ago on the Santie river in South Carolina, which was thirteen feet and ten inches in circumference at three feet from the ground. This and several others of a similar size growing there had been planted by the Hugenots from nuts obtained in Louisiana. On the Brazos near the town of Richmond in the Southern part of Texas, I measured one which was sixteen feet and five inches in circumference at three feet from the ground and about one hundred feet high, an unusual hight for the Pecan which is seldom more than twenty feet high.

The Pecan is found native from Texas, extending northward as far as Southern Illinois, being most abundant near the rivers which are tributary to the Mississippi. It is not indigenous in the Atlantic Sea board States, as it grows North a as far as the latitude of St. Louis, and also bears fruit in its northern localities; it can doubtless be cultivated throughout a large portion of the United States.

A New Way to Dry Peaches.—Dr. Joseph Treat, of Vineland, N. J., gives the following, and as he says, new directions for preparing peaches for drying: "Never pare peaches to dry. Let them get mellow enough to be in good eating condition, put them in boiling water a moment or two, and the skins will come off like a charm. Let them be in the water long enough, but no longer. The gain is at least sixfold—saving time in removing the skin, great saving of the peach, the part of the peach saved is the best part, less time to dry them, and better when dried. A whole bushel can be done in a boiler at once, and then the water turned off. This very morning we had over two bushels skinned, stoned, (halved) and on the boards, long before a quarter of them could even have been peeled."

Celery for Nervousness.—The *Educational Gazette* claims for celery valuable medicinal properties. Says many persons become so much affected with nervousness that the least annoyance greatly agitates them, and when they stretch out their hands they shake like aspen leaves on windy days. By a daily moderate use of the blanched stalks of celery as a salad, they may become as strong and steady in limbs as other persons. Every one engaged in labor weakening to the nerves, or afflicted with palpitation of the heart, should use celery daily in season, and onions in its stead, when not in season.

Profits of Horticulture.—At a recent meeting of the Montgomery County (Ohio) Horticultural Society this subject was discussed. The secrets of success were set down to be finding out what does well in one's soil, giving every attention to culture and marketing, with strict honesty in ones dealings, and no humbug, not trying more than could do well. One gentleman though, that the continual striving after excellence was the one thing needful. If a man has this element in his nature, the others follow immediately after.

For the Western Pomologist:

Variety in Fruit and Flowers.

The "Dyehouse" cherry — New variety of fruits by accident—Hybridizing—Artificial fructification—Cross-breeds, &c.

On reading the article of H. T. Harris, in the September No. of your journal, about his "new cherry," and his concluding remarks arrested my attention, and having made vegetable physiology and botany a study for the last thirty-five years, (being now over 61,) your readers will not deem me impertinent in presenting a few facts which may interest some at least.

It is regarded that each species is the type of some original genus or sort, be it plant or an animal. I will confine my remarks to plants, however. Varieties arise from a diversity of condition. That is two seeds of the same pod or plant springing up in different soils, may differ ultimately in some particular in their fruit, as to mellowness, austerity, color, and quality.

It is found that certain spots in the same patch of ground differ greatly in the composition of the soil, arising perhaps from having been dug out at one time for the interment of some beast, sink or hole filled up, or the like, and yielding a certain pabulum, calculated to give a special cast to the sap and character of the tree or plant, which results in the modification or improvement of the leaf and fruit—in short, produces a new variety. This is the natural course.

To perpetuate such a variety, whether obtained through the skill of man's culture, or spontaneously in a natural way. The new buds and branches being all imbued with this peculiar change, grafts and cuttings will reproduce the same variety under cultivation. The seeds of apples, peas, cherries, &c. of such variety when planted may produce the original type. As those differ from such races as the varieties of pears, radishes, lettuce, &c., as well as certain sorts of grain, in which varieties have been under culture for time so long that the origin or locality is unknown.

Those conversant with the history of various kinds of wheat, &c., are aware that many resulted from "accidental sports;" but mark, I hold that certain laws govern "accidents." Also by selecting the most vigorous plants and the most prolific and well filled heads, and cultivating such with care, so as to become hereditary and rendered permanent by attention to the cultivation of the same.

Thus it will be seen that Mr. H. can dismiss the fear of being accused of lending his pen or purse in the interest of a "humbug." Nor is it necessary to consider it a sprout of the "Early Richmond." Where or how did the "Early Richmond" come to light? Either by chance or cultivation, and what has taken place once can happen again under like conditions, whether induced by skill of man or fortuitious circumstances in the nature of the thing.

Hence, it might occur in an "old Morello thicket on the secluded grounds of an old man." If he did not know a "cherry from a grape," his ignorance has nothing to do with it. The loftiest wisdom of man might not have been adequate to the task under the circumstances. So that if it is an improved cherry, no matter whether you call it "Early Richmond," or "Dyehouse," persevere from good to better, and use the legitimate means of mind and matter a bountiful creator has supplied and placed at your disposal.

Being on this topic, allow me to ride my hobby a little longer. You, Mr. Editor, are aware of the constant addition of varieties to the already lengthy catalogues of fruit and flowers, of what are termed hybrids or cross-breeds, in numerous instances.

You are aware, also, that there is a strong natural tendency to return to their primitive type, or to die out through exhaustion by being too greatly forced or over-fed, or when neglected for a few generations to a spontaneous growth. Thus it happens that fine, showy, plants, highly esteemed new varieties are often sold, and from the change of locality and condition of soil, or negligence, the purchaser meets with disappointments, and considers that some shameful imposition has been enacted, and is apt to charge the propogater with deception, of which he is guiltless, only that no one knows better than himself. How very precarious the permanency of certain kinds is, and how liable to depauperate, and often sink below the original. There seems to be limits that cannot be surpassed, and a hight of perfection not yet reached. Yet, progress is made and permanency mostly secured. Vegetable physiology presents many interesting phases, many of which are not yet fully comprehended. As regards fertilization, the facts seem to teach that "when a grain of pollen has fallen upon the stigma, and is retained by the hairs projecting from the surface, a pollen tube is emitted, apparently owing to endosmatic action between the fluid exudation from the stigma and the contents of the pollen cell, which latter bursts and sets free the inner lining of the cell in the form of a cylindrical tube. This tube passes down between the cells of the style, lengthening out till it at last reaches the ovules in the cavity of the ovary. This lengthening is not a mere extension, but due to actual interstitial growth, until it comes in contact with the nucleus and embryoack. A slender cellular thread arises from the minute germinal vesicles, on the end of which is the embryo plant," so says Masters, M. D., in his "Life of a Seed."

The importance of the pollen is well understood, and is not a new thing. Delille, the botanist, says, when with the expedition to Egypt, where the harvest of dates has for ages been assured by mounting the palms and shaking the male panicles upon the female flowers. But the French invasion prevented the Arabs to attend to this matter; and the consequence was that the date trees remained barren for that season.

Insects perform important duties in the line of scattering pollen, and may be instrumental in producing varieties, occasionally. Aristotle, Thesphrastes, and Pliny speak of the marvelous results of a certain fly in fecundating the fig, termed "caprifiation." Tournfort demonstrated this correctness, and says that the "caprified fig tree yields as much as 280 pounds of fruit, while only 25 pounds can be gotton from it when it is not artificially fructified. It is however as with much matter again questioned. Oliver, who also saw this operation practiced during his travels in the Levant, and Bose, the writer of husbandry, look upon it as useless. As circumstances alter cases, a diversity of opinions naturally exist on many subjects, hence it is well to know both sides of the question, perchance the truth lies between the extremes.

Least I weary you, I will now dismount, and respectfully leave and release you.

J. Stauffer.

For the Western Pomologist.

How Trees are Planted.

Friend Miller.—Since I wrote you last, I have visited several orchards in an adjoining county, where settlements and orchards are older than in Crawford county, and I find much to encourage the horticulturist.—The apple crop is light, but the trees are thrifty and promising. I find in Warren county and elsewhere in my travels three classes of fruit growers. One class buy their trees almost anywhere, and when planted, pasture them, and have pasture only. Others stimulate an unhealthy growth by cultivation and manuring.—But such growth does not stand the winter, and the planter concludes that his locality is no apple country. Those who succeed, plant on high, dry land, or make their land dry by draining, if naturally wet. They do not force an unnatural growth, nor do they cut away a portion of the growth just because they have a knife to do it with and think they must use it on something, nor do they stimulate a late growth by late cultivation.

In my last letter you make me say of the pruning knife: "give it to some little boy if he does whittle your cherries," etc. I meant to say "chairs." I do not believe in much pruning.

S. J. Comfort.

Denison, Iowa.

In some parts of Connecticut rain is so scarce and apples so abundant that cider is absolutely cheaper than water. The teetotal societies are panic-stricken, and are disbanding by the dozen.

The Vegetable Garden.

For the Western Pomologist.

Horticultural Operations on the Iowa College Farm.

Thinking that the public might be somewhat interested in what is going on at the State Farm, I have concluded to give an outline of the principal operations of the season connected with the beginning of the College garden.

The work began the first of March, as up to that time nothing had been done to fit the ground for the year's crop. Ten acres or more, lying directly north of the College Hall, were assigned to gardening purposes. The ground is gently undulating, rising five or six feet in the first hundred yards, then falling away seven or eight feet in the west one hundred and fifty yards, and then again rising for some distance. The soil is a black prairie loam, and is very uniform, being but little more sandy on the highest portions than on the lowest.

About the first thing done was to lay out the ground, which was done as follows: The whole was divided into blocks of equal size and shape, each one being one hundred and sixty feet on the front (*i. e*, on the south side), and two hundred and seventy-two and a fourth feet in length, north and south. This makes each block contain one acre, and the shape gives exactly one square rod for each foot of front, making the estimate of crops easy and rapid. There are nine of these blocks, all separated by drives fifteen feet in width. With this arrangement, it is easy to go to any part of the garden with a team, while at the same time the rows of crops are sufficiently long so that horse hoeing can be profitably employed.

In the early part of the season, on account of the press of work, the drainage could not be done. It was consequently deferred, and is now being done, so far as our limited supply of funds will admit. We are putting in mains and sub-mains, running through the lowest ground; and in order to get the best results, are putting two drains in each depression, one on each side of the lowest line, at a distance of from two to three rods from each other. We use the round tiles, and put them down about three feet and a half below the surface. When the drainage fund runs out, we will have to stop work, and will then have nearly all the mains and sub-mains laid which will be needed for the final, thorough drainage of the ground. It is very desirable, of course, that the whole be finished as soon as possible; but with the drains put in this season, we will be able to do quite nicely until we get funds for finishing the whole.

In order to get in the crops in time, the ground was not subsoiled in the spring, but merely received as good plowing as we could give it, after manuring quite heavily those portions which were to be devoted to the more important crops. This fall, as soon as the crops are removed, the whole will be heavily manured again, and then plowed and subsoiled. The plow we use for subsoiling does not bring up the lower soil, merely stirs and breaks it up.

But to leave what we are *going to do*, and to go back to what we *have done*. After we had shortened our spring work by leaving out the draining and subsoiling, we planted in their time the ordinary garden vegetables. For supplying the Boarding Hall with early potatoes, we planted two varieties—Early Goodrich and Mountain Sprout. The return was only moderate, on account of the drouth, which injured more or less every crop on the garden.

Early cabbage was started in the hot bed from April 5th to 25th, and transplanted to a sheltered bed in the first week of May. They were then set in the open ground as soon as the weather became mild enough. For late cabbage, the the seeds were sown in place, putting in enough seeds so that the bugs, beetles, and other pests would have all they wanted, besides leaving us a good supply. For a time they all grew marvelously well, and promised a large yield; but alas! when the plants were about half grown, the enemy came in the shape of a larvæ of a small lepidopterous insect, and for a time threatened the entire ruin of the whole crop. As it was, this pest did not stop its ravages until the beginning of our fall rains, since which the strongest plants are pushing out new leaves and forming good heads.

One acre and one-third of sweet corn was planted, of the varieties "Stowell's Evergreen" and "Forty Day," both of which did well, though the first mentioned seems to be rather the most desirable for general use.

Peas, beans, beets, carrots, parsnips, onions, etc., were planted in their time. Returns from some of these moderate, while from others very good.

Tomatoes received the same treatment in their younger stages of growth as the cabbages. They were started in the hot bed in April, were transplanted to a protected place about the middle of May, and about a week or so later were transplanted to the open ground. In transplanting, great care was taken not to unnecessarily expose the roots to the wind and sun, and when a plant was set, and a little earth put about its roots, water was added, which carried down the soil and fitted it closely around every rootlet. In this way, we transplanted over thirteen hundred plants in the hottest of the spring weather, when the ground was very dry, and still lost but few plants.

Wishing to test the comparative merits of the several varieties of cabbages, potatoes, and tomatoes, a set of experiments were instituted for that purpose. The drouth has modified the results so considerably that for ordinary seasons they cannot be looked upon as perfectly reliable; still some things connected with them have some value. Thus, for example, among the sixteen varieties of cabbage tried, the "Early Sugar-Loaf" suffered the most from the drouth, scarcely heading at all, while the "Early York," and "Early Oxheart," formed quite good heads, in spite of the lack of rain. Among tomatoes, also, while "Cook's Favorite," after a splendid promise of earliness and productiveness, failed to prove itself even third rate. "Extra Early Red" soon took and held the first rank for both mentioned qualities. "Gen. Grant" and "Tilden" were tried together, and proved themselves to be of about equal value, and well worthy the attention of those who like smooth tomatoes. The whole results from available data in this tomato experiment have not yet been summed up. Over forty well marked varieties were tried.

For testing eighty varieties of potatoes, choice was made of a plat of land having as little variation in the soil as possible.—Equal quantities of each variety were then planted, all receiving exactly the same treatment throughout. As they have not yet been dug, no results can be given at present.

A beginning has thus been made, and to this year's work we hope to constantly add. What we hope to accomplish is to reach the highest culture of the soil, with the best varieties of every kind of garden vegetables which can be grown in Central Iowa, and at the same time to make our experiments more and more comprehensive, with a corresponding increase in their value to the practical horticulturist.

CHAS. E. BESSEY.

Iowa Agricultural College, Oct. 5th, 1870.

PICKLED SWEET APPLES.—Wash the apples and put them, unpared, into a steamer over a kettle of boiling water, covering tightly. Put them in not more than two deep, and let them steam until you can stick a fork into them easily. While they are doing, I boil a quart of good vinegar, not too sharp, with two cups of sugar or good sorghum syrup. When it boils, put in the apples from the steamer and let them boil ten or fifteen minutes. Take them up in a pitcher or a stone jar, and pour the vinegar hot over them. They are good as soon as cold, but will keep well and make a nice relish for any meal. So says an exchange, and we believe it's so.

THE POMOLOGIST.

Acknowledgment of Fruits and Insects.

Mr. D. B. Clark, Council Bluffs, favors us with specimens of a seedling apple originating in his orchard. Noticed and illustrated on another page.

We have from Mr. Lewis Martin, Anoka, Minn., specimens of two seedling apples, said to have originated thirty miles north from St. Paul. Elsewhere described.

Mr. H. A. Terry, an enterprising horticulturist at Crescent City, sends us specimens of ten varieties of apples, none of which are yet in season. The collection includes some new and very handsome apples. Will receive further attention in due time.

Mr. N. R. Harrington, near Polk City, favors us with a very fine collection of apples from his orchard—large, fair, and clear of the coreworm—a pest Mr. H. informs us has not yet appeared in his orchard. His crop is about seventy bushels of the most valuable sorts.—We find very fine specimens of Telpehocking, White Winter Pearmain, Willow Twig, Northern Spy, White Bellflower, and others, all satisfactory with Mr. H.

Mr. J. C, Finlayson, Eldora, Hardin county, sends an apple for a name. It is unquestionably a seedling. Fruit rather small, a very fair cooking apple. Of its origin, etc., Mr. F. says: "I found the tree growing in an old orchard in this county where nearly everything else had died out, leaving this healthy and vigorous, and bearing annually good crops of fruit, such as I send you. The tree seems to be remarkably hardy, and as it is unlike anything with which I am acquainted on the hardy list, I think it will be an acquisition."

Received from Mr. Abner Branson, West Branch, Cedar county, a butterfly, upon which he remarks: "In the month of September, the butterflies, of which I inclose a specimen to you, were very numerous about here in the orchards. Can you inform us what they are and what insect we may look for next season as their progeny?" We are not able to give the information desired. Have sent the specimen to Mr. C. V. Riley, Missouri State Entomologist, from whom a reply may be looked for in December number.

The Mediterranean Fruit Trade.

J. H. Bostwick, U. S. Inspector, publishes in the N. Y. *Evening Post* an interesting statement of the fruit trade between the Mediterranean ports and New York, from which the following particulars are gathered:

The importation of oranges and lemons previous to 1830, was small, not exceeding 15,000 or 20,000 boxes a year, and the capital employed in the business did not exceed $30,000. The cost of the fruit did not exceed 80c a box at the place of shipment, and here it was sold at about $1.50 a box. But since 1836 the importations of fruit have been steadily and rapidly advancing, the present year exceeding the last year by some 15 per cent, The amount of capital now employed in the fruit trade of New York equals $1,000,000! The total number of boxes of oranges imported last year was 493,972, including 2231 cases; and of lemons, 243,790, including 2259 cases; making a total of 85,644,000 lemons, or something more than two lemons to every man, woman, and child in the United States. Importers of fruit are subject to great losses from time to time, arising from the rotting of the fruit or the glutting of market. For illustration: there were at one time, in March, 1859, no less than 38 cargoes of fruit in the New York market—say 170,000 boxes; and during the year, not less than 118 cargoes arrived in sailing vessels; and the per centage of loss was very great, amounting to $1,000,000. Down to 1860, sailing vessels were exclusively used for the transportation of fruit to this market. An experiment was tried that year of employing steamers. But it proved an expensive failure, and was immediately abandoned. In 1869, however, another attempt was made with steamers, and a regular line established between Palermo and New York, a steamer to arrive every seven or ten days. This experiment has been more successful than the first, The steamers average only about 28 days in their passages, and there is much less loss of fruit than by sailing vessels. But still the lack of ventilation, and the heat generated by the boilers and furnaces cause very heavy losses; and not until steamers are constructed especially for this trade can the trial be established of using steamships instead of sailing vessels in this highly important business.

The Abundace of Fruit.

If we are to believe the reports that come from all quarters, the fruit crop of the county was never more abundant, taking the county through than the present season. In many of the older States, apples—the fruit of all fruits—are a drug in the market. In some portions of northern New York farmers are feeding out large quantities of their apples rather than manufacture them into cider at $1.50 per barrel—the market price of cider. All through the New England States the apple crop is reported immense, beyond any precedent. An exchange says, "cider mills are kept running night and day, by lantern and moonlight." A Boston paper says western New York apples are selling in that market for $2.00 to $2.25 a barrel, wholesale.

The grape crop all over the country has been a very full one, and in quality never before so good. The numerous tests made in different localities of grapes and wine, invariably show a richer fruit than has ever been produced in this country before. The California crop was not only superior in quality but unusually large. At Pleasant Valley, N. Y., the crop in that single locality is set down at not less than 7,000 tons,

The peach crop appears to have come up also, "hip and thy," with the apple and grape crops. The little State of Delaware alone claims to have produced at a low estimate 1,350,000 baskets of peaches. At the height of the peach season in New York, the receipts for one week were reported at 578 car loads, to say nothing of the arrivals by steamers and sloops.

Duncan's Falls Blackberry.

Mr. J. C. Neff, of Duncans's Falls, Ohio, writes us about a new blackberry he has in cultivation, he says of it:—I picked ripe berries of the Duncan's Falls, July 14. I believe this blackberry is bound to supercede all others. The plant is a rampant grower and fruits abundantly. The fruit is as large as Lawton and as sweet as the Dorchester. It is the earliest among many varieties on my grounds, except Mason's Mountain, a variety, though early, too small. I picked one bushel of fruit of the Duncan's Falls from sixteen canes last July."

Apple and Plum on Wild Stocks.

Ed. Pomologist:—Allow me to inquire through the columns of your journal if our leading varieties of apples can be grafted successfully upon the native wild crab, and the Miner and Lombard plums on our native wild plum stocks, and whatwould be the result of such a union?

Newton, Iowa. ENQUIRER.

Remarks.—The finer varieties of the apple and the plum take readily on the wild stock. With the apple, however, there is nothing to be gained whatever by such a method—it is labor lost. The scion outgrows the stock, and is liable to break off. As to growth of scion and stock, the same objection applies to the plum—the scion makes a larger growth than the stock. But there is one important advantage to be gained by working the domestic plum upon the wild stock—early and great fruitfulness while the tree does last. It will pay to propagate the plum in this way. The nearer to the ground the grafting is done the better.

A Seedling Apple Orchard.

Editor Western Pomologist:—Near me is a seedling grove of apple trees of about three-fourths of an acre, standing upon the site of an old nursery. The trees are in bearing and the fruit embraces fifty or more varieties, no two of which are alike either in taste or color. Some of them are good imitations of some grafted varieties. With a little selection much of the fruit bears about as good a price in the market as the cultivated varieties. This patch of seedling apple trees forms a handsome grove and produced fifty or sixty dollars worth of fruit annually. What crop will pay better? Is there not room yet to increase the list of our valuable apples by the production of new seedlings.

THOMAS PADDINGTON.

Cedar Rapids, Iowa.

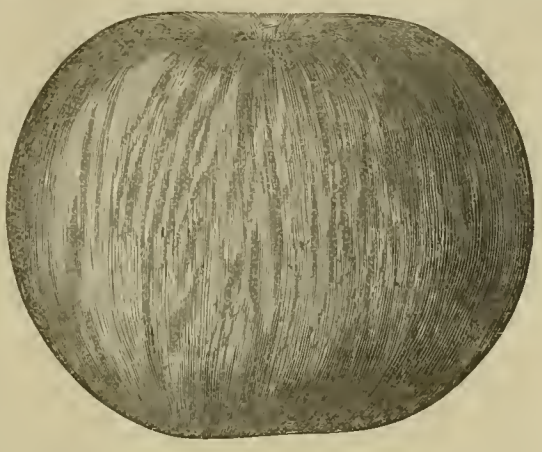
Apples for the South.—A correspondent of the *South Land* says there are not over a dozen varieties of northern apples that succeed in the southern States—is not acquainted with more than six: Red Astrachan, Early Harvest, Jonathan, Duchess of Oldenburg, Summer Queen, Benoni, and Fall Pipin. Knows four more that will ripen, but are out of season as they come to maturity when pears and peaches are abundant; hence, of no account except for drying. Red June, Streaked June, and Yellow June are all fine early apples of southern origin.

Shade for Tomatoes.—A correspondent of the *Country Gentleman* says:—"During this season I have tried many plans for ripening tomatoes and melons early, by pruning the vines near the fruit, removing leaves and other shade, and exposing the plants to the action of the sun, while I have left other vines much shaded by grass, and to my utter surprise, find the latter ripen more rapidly and evenly, besides being of better size. The same seems true as regards the large Hubbard squash. I believe the above facts are at variance with the general idea on the subject."

The largest, sweetest, and best grapes are those grown in the shade of the leaves, a fact fully and fairly demonstrated. Why may not the same conditions be favorable to the best development of some other fruits, and also to vegetables? There is a great deal yet to be learned in the school of horticulture.

Stayman's Summer.

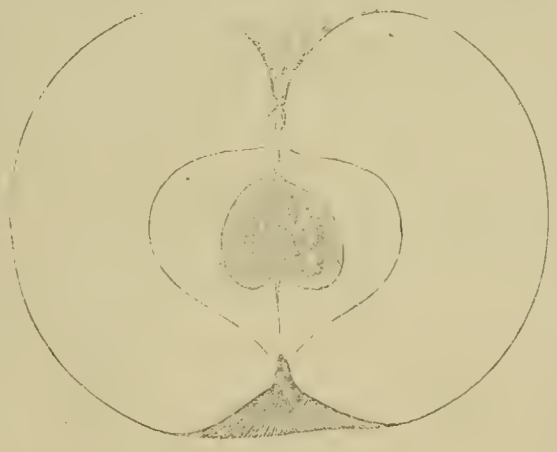
Fruit medium; weight five to seven ounces; form round, regular, approaching conic; skin smooth, greenish yellow, splashed and striped with red and purple, covered with a white bloom, dots small, grey, scattered; stem medium, rather slender; cavity narrow, deep, irregular, russeted; eye very small, closed; basin narrow, shallow, furrowed; core small, slightly open; carpels small; seeds small, short, plump, dark drown; flesh greenish white, very juicy, brittle, sprightly, high flavored, mi'd acid; quality very good; use kitchen table, and market; season August and September. Tree hardy, vigorous, spreading, irregular, tough, wiry; *very early bearer* and *extraordinary productive*, droops like a weeping willow, with *ropes of fruit, never breaking a limb.* This tree stands by the side of six hundred varieties, and has come into full bearing at least two years sooner, and has produced more than double the quantity of any other variety at the same age. Flowers very large in clusters standing wide apart, striped red, blossom early, perfect, every blossom setting fruit, but soon after all drop that cannot be matured, those remaining never drop by the hardest wind until ripe.



Leaves large, heavy, dark green; bark dark, glossy, some speckled. This tree has some extraordinary peculiarities that we never saw in any other tree, and the fruit is very nearly equal to Benoni, and Summer Pearmaine, but more handsome, and productive, and a much earlier bearer.

Original tree standing on my ground here, nine years old.

J. S., Ass't Ed.



STAYMAN'S SUMMER—OUTLINE.

For the Western Pomologist.

Pomological Progress—Fruit for Home Use.

The earth is barren and unfruitful only because fruits are not planted and cared for by man. We see everywhere, and on every side, large sections of our country in which the people, and even the owners of land, do not have half as much fruit as they desire, and as would be healthful for them. The land is fertile—there is enough of it to spare—there are good sites for all the fruits of the region, and yet hardly a bush, a vine or a tree, is there to give refreshment and health to the occupier of the soil and his family.

It is so to a great extent in the older States. Twenty years ago you could there find, perhaps, in one garden in ten, a tree of the English Warden or Pound Pear to yield fruit for cooking and preserving; and in a few gardens, in each town, could be seen a few trees of the incomparable St. Michael; and that was about the only good eating fruit to be found, except peaches. Within a few years, however, there has been a great change in this respect. Nearly every garden, whether of shopkeeper, manufacturer or mechanic, doctor or lawyer, is now stocked with a variety of pears and early apples; and with the smaller fruits, which the owner personally looks after, and which add largely to the interest and enjoyment of the home.

But with the majority of the farmers in this section of the country, and with the farmers of the West generally, the absence of the good fruits round the homestead is quite surprising. Fruit trees and vines are now cheap; if nurseries are not near, their agents are almost everywhere, and a little expense in money and attention to the plants a little while each season, would soon add much to the value of the estate and comfort of the family.

But a little labor and care in each year, without the expenditure of *any* money would soon stock each farm and garden in the West with an abundance of the best fruits. How? Now, in the fall, is the time to begin to plant the seed. Wherever you would like to have a tree of the plum, peach, pear, or apple stand, turn over a spit of the sod as large as a water pail, at least, and in that plant a few seeds of the fruit you desire, a few inches apart, about half an inch deep. Choose the ripest seed and put it in the ground soon after it is taken from the fruit. When planted, put a rock, brick, or large chip over the spot, and let it remain until the frost is out of the ground in the spring. Then uncover it and you will soon see the rising plants. Put some brash over the spot when uncovered, to prevent the fowls or robins from "picking up" the young plants. By mid-summer you will see which plant will be the most thrifty. Pull up the others, unless you wish to save them to transplant in the fall.

Now this takes but little time to get a *good tree* in *the right place*, and one that will grow faster—in the sod even, as its tap root is not broken or disturbed—than a transplanted tree would in cultivated ground.

If the men will not do this planting, the mother and daughters can; and they will be more likely to look after and care for the young trees than the former would be. The peaches should be budded the first year, and the others in the second or third year. Any neighbor who has good fruit will give a stick of buds, and every fruit book—one of which should be in every farmer's house—will tell him when and how to put them in. Every farmer's child—boy and girl—ought to know how to plant, bud and graft trees.

It should be taught by the school teacher, if no one else does it. Such work would interest the coming generation in horticulture; would attach them to the soil and old home, and give them joys and hopes of which the truant children of the city never dream. And what an altered aspect the earth would soon wear, could they be thus interested and induced to plant the seed of all the good fruit they eat!

George Haskell,
Ipswich, Conn., October, 1870.

Neglect of Trees.—A writer on the loss resulting from neglect in the proper care of orchard trees in cultivation and otherwise, hits the truth exactly in saying: "If nine-tenths of our orchards should be cut down, and the labor and cultivation which they receive be expended on the remaining tenth, *more* and *better* fruit would be raised." We venture the assertion that not one apple, pear, or cherry tree out of ten planted in Iowa for the last ten years, ever have, or ever will produce a solitary specimen of fruit, and all for the want of proper care, and nothing else.

A Nashua, N. H., paper says: "In several towns in Maine apples are offered at ten cents a bushel at the orchard. In many towns in our vicinity they can be had for nothing."

The Vineyard,

Grapes and the Season.

High temperature and diminished rain-fall necessary to the perfection of the grape.—Best market grape.—The Concord, &c.

As our grape season is past and we have about completed our observations, the result may be of interest to the public, in regard to the season, the quality of the fruit, and the varieties to plant.

The season has been varied and extreme both for moisture and dryness. From April to September, inclusive, there had been no more than an average amount of rain, it being 27.21 inches, but from the foliation of of the grape, April 14th, until June 16th, it had been extremely wet, being 10.24 inches of rain, almost threatening the destruction of our crop, and in a few cases the rot had already commenced, but a timely change in the weather checked its further progress.

Notwithstanding this unfavorable commencement, the latter part, the maturing season, had been the most favorable since 1860, for from the seeding of the grape, June 22d, until the maturity of the *Concord*, August 6th, there was but 3.36 inches of rain, being 3.48 inches less than any record here for the last nine years, and also less than the record of any other grape region east of Kansas, except two instances in 1867 at Cincinnati and at Kelley's Island, Ohio. And for the same period of 45 days the mean temperature was 80.5 degrees, being four degrees higher than the average, and during the same time out of 135 regular observations made, there were but six that the sky was entirely overcast with clouds As we have before shown that a high temperature with little rain and clear sky during the maturing season was favorable to the development of saccharine matter, and would produce grapes of the best quality, so this season has been remarkable in that respect. Never before had the *Concord* grape ripened so soon and been so excellent.

But while the season was favorable to the maturity of the early grapes, it was unfavorable to the ripening of the *Catawba*, as the latter part of August and all of September was extremely wet and cloudy, there being 13.81 inches of rain from the 8th of August to the end of September. Although the mean temperature for that whole period was 70 degrees, being above the average, yet it was not sufficient under the above conditions of moisture and cloudiness to evenly and thoroughly ripen the grapes, which is an additional proof of what we have before said that a high temperature and diminished rain-fall was necessary for the perfection of the grape, which the following illustrations will fully demonstrate:

In 1869 it required 133 days at a mean temperature of 70.5 degrees, from foliation to the maturing of the grapes, being equal to 9,355 degrees of total heat, with a rain-fall of 31.60 inches, while in 1870 it required but 111 days, at a mean temperature of 73.6 degrees, being equal to 8,188 degrees of heat, with a rain-fall of 13.60 inches, being a difference of 21 days in time, and 1,167 degrees of heat, with 18 inches less rain, and the quality and perfection of the grape was in like proportion.

Had we not suffered with the late April frost and a severe hail storm, our crop would have been much greater than any previous year, but the frost badly injured the *Concords* and a few lost all by the hail, so our crop was reduced more than half, but our grape-wood is strong and well ripened, (and those disasters rare) so we hope the coming season to make up the loss in part.

The past varied season has more fully settled than ever before the value of the *Concord* grape, and for the present it must be the leading one.

It is useless now to talk of any other for profit or market, although we desire something better, yet we have no other to give that will even favorably compare with it.

The *Ives* is equal in vigor, health, and productiveness, and superior for *very* early and late market, and also we presume for *wine*; but when the *Concord* is in season its superior quality, size, and beauty, would make it useless to attempt to sell the *Ives* in market by its side.

The *Hartford* having no quality equal to *Ives* is superceded by it.

The *Telegraph*, a hardy, healthy, productive, *early grape*, and the *Martha*, a white grape, both promise well. The above are all of the *Labrusca* class of grapes we can now recommend.

Norton and *Cynthiana* exclusively for wine are all the *Virginica* class of grapes we know worthy of cultivation.

Of the *Æstivalis* and *Cordifolia* class we know of none; the first being tender and fickle and uncertain, the latter being too small in bunch and berry, and being too thin in foliage to resist the grape gall, thrips and other leaf eating insects.

For late grapes *Goethe*, a large pink grape, and *Pennola*, a fine compact black grape, are the only two we know which promise well. All the other numerous varieties that we have tried except a few of *Rogers'* are only adapted to the amature and speculator.

Of hybrids of our improved varieties with the foreign grape *Vinifera* discard. The violation of such a simple rule, say nothing of an incontrovertible physiological law, could not but prove disastrous.

J. S. Ast. Ed.]

All long grass, leaves, and other rubbish, should be removed from around the trunks of the trees to protect from mice.

For the Western Pomologist.

General Management of the Grape - New Mode of Training.

Ed. Pomologist.—So much has been and is yet being said and written on the mode of propagating, planting, training, and general management of the grape, that it may seem a work of supererrogation, if not presumption, in one of humble pretensions to much knowledge on the subject, and but a small modicum of experience, to venture a suggestion. Still, as we all have our vanity, and like to make a little exhibition of it, I must be excused for encumbering your more valuable space with a mode of training grape vines, which I am about to try, and which, it strikes me, will prove a good, as well as economical way of managing them. I do not know that the same plan has been tried heretofore, but that it has, I have not read or heard of it.

I am now growing a square of some one hundred vines in my vineyard, which will be ready for training next spring. They are set in rows of twelve feet distance, and five feet in the row, running north and south. I design to set in stout locust posts, twelve or fourteen feet nigh, at proper distances, between and in the center of each row. On the top of these I shall nail a three or four inch oak board, extending the length of the row. I shall then prune the vines down to two eyes, and plant an ordinary bean pole of the proper length to each vine, resting it on the ridge board as above, and making it fast with a withe, or other suitable fastening, to secure it to its place. When this trellis is completed, you will perceive, it will present the appearance of a skeleton green house. To these poles I shall tie up the vines. I will cut down to two eyes the coming spring, and train the current growth of next summer from these two eyes —one to the right and the other to the left At the expiration of the season, I shall cut down one of the canes to one eye, and let as much wood stand on the other as its vigour will justify for bearing.

The one cut down to one eye will be trained to the opposite pole or stake, and allowed to grow, picking out the side shoots until it reaches the ridge pole, when its further pruning or dis-budding will be abandoned, and it will only be kept from straggling by tieing it at intervals to the ridge pole. The bearing cane opposite to it will be allowed to grow without pruning, until its fruit is set and of the size of a large pea, when the bearing shoots will be cut off to two leaves beyond the second bunch of fruit, and when the grapes have got nearly their full size, itwill be pruned off even with the ridge pole.

By this plan I think the grapes will get air and sun sufficient to secure both growth and ripeness. It will be easily managed, and the cost will be but trifling. I think in this way the vines may be kept in due bounds,

and the entanglement and confusion which results from training the bearing as well as the current growing cane to a single stake, avoided.

You will perceive that my little vineyard, when finished, with the vines in place, will present somewhat the appearance of a row of tents with both ends open. And the vines growing along and at intervals of five feet on their sides, running north and south, the vines will get the morning and evening sun, and a constant draught of air through the center. The whole will also present quite an unique appearance.

Moorefield, West Virginia. I. G. Mask.

The Dracut Amber.

Editor Western Pomologist:—I take the liberty of referring to an engraving in the October number of your paper, accompanied by a recommendatory description of the "Dracut Amber" grape, by the originator, Mr. J. W. Manning, and also a favorable account of it by the Superintendent of the Experimental Gardens at Washington.

As these encomiums of that fruit come from such high authority, I can not let the opportunity pass to say that in my experience, this is one of the strongest instances of of the difference in fruits grown in an Eastern and Western soil and climate. After trying it for some six or seven years on my premises in this State, I can say truly that the Dracut Amber is utterly worthless. It is a great grower, perfectly hardy, but I never gathered from a vine seven years old, one half pint of berries, and then *they* were so miserably foxy that I did get, that they were not fit to eat.

I cannot doubt of course, that in Dracut, Massachusetts, and especially at Washington City, where the atmosphere is always so *tranquil*, *pure* and *sweet*, this is among the most valuable grapes; but I do know that at Knoxville, Iowa, the more a man might have of them, the worse he would be off. Nor can I by any means recommend the the Perkins, after a trial of ten years, for two reasons. First, though a good grower and hardy, it generally drops its fruit badly before maturity; and is also too extremely foxy for any one who does not like the peculiar flavor and fragrance of a pure fox grape.

These are only instances to illustrate the uncertainty in buying fruits grown in the east, however highly recommended there, until they have been fully tested in our own Western soil and climate.

These kinds may succeed better in Iowa' in other localities where the soil is more argillaceous. But I would say to all, don't invest too largely in them till you know something about their success in the West, unless you are an amateur, and wish to try all sorts by way of experiment.

James Mathews.

Agricultural College Farm, Oct. 24, 1870.

For the Western Pomologist.

The Eumelan Grape.

Though my Eumelan vines have not fruited yet, I have had the pleasure of tasting the fruit, and I unhesitatingly pronounce it second only to the Iona, and ripening much earlier. It is without pulp, and sweet to the center—the best black grape I have tasted; and being a first quality fruit, early and strong grower, it is the grape for the million. I have cut away a part of my old vines and grafted in the Eumelan, and intend to cut away the most of the balance and graft the Eumelan in. The Iona and Eumelan are the best grapes I have yet tasted, and I am fast converting my vineyard into those two kinds, as it costs no more to grow a good grape than a poor one. The old sorts done very well till we got better; but now that we have better, I will soon change all to best.

I would add—this season has been a peculiar one; the fruit crop abundant, except grapes; though strawberries and raspberries blighted some from drouth, which was very severe at their season of ripening. All kind of fruit ripened before its usual time—fall apples ripened in summer, early winter in early fall, and late winter quite good eating now.

Grain and grass generally good; potatoes a light crop on account of bugs. No frost yet, though the forest trees are fast cleaning of leaves. Peter M. Gideon,

Excelsior, Minn., Oct. 1870.

American Grapes.

DO WE UNDERSTAND THEIR PROPER CULTURE?

In 1867 and 1868, I traveled throughout Europe, and studied the grape in every grape country; and I found the nature and constitution of the foreign grape so totally distinct from our indigenous grapes, that I was naturally led to reflect whether our method of cultivating our American vines did not too closely resemble and pattern after the European system, which hundreds of years of rigid pruning, etc., has metamorphosed into an almost entirely artificial product, whilst our vines are almost entirely natural.

The vine dressers from Europe, having almost a birthright to teach us how to cultivate the grape, have brought their ideas and treatment among us, and it would seem sheer assurance to take any appeal from their decision; and so we cut and prune our luxuriant growing vines by the European square and compass, to a severe extent.

I think we are beginning to throw off these European ideas, but by very slow and feeble degrees. I have seven acres in grapes and my trellises are from eight to ten feet high, and I would have them higher if convenient—even twelve feet. I train my vines so they will bear the most fruit at the top of the trellises; and I believe they escape mildew, rot, etc., from this method—mildew and rot arising to a great extent from the fruit being too close to the ground and severe pruning. My grapes escaped all diseases, while my neighbors suffer some from rot, bursting open and leaf blight.—*C. S. Car. Boston Spectator.*

Kiln for Drying Fruit.

A Tennessee correspondent of the *Ohio Farmer* gives the following directions for kiln drying fruit:

"A man can make a kiln of this in a day who has the stone, and one can dry about one bushel of dried apples per day. It is built of stone, laying the walls up sixteen inches high and four feet wide leaving a place for smoke to go into the chimney at the back end. A few pillars are put through the center so as to hold up the top stone; that leaves two places for fire. It is covered with stone two or more inches thick; upon that two or three inches of thick mortar is laid, so as to make a firm body that will hold the heat. After it is dried, a bushel of slacked lime with very little sand in it, is spread evenly over the top; that will become hard; the fruit is spread upon the top.

As to length people can suit themselves, but eight feet is a good length; then the heat can be kept more uniform. The fruit dries very fast. It requires to be filled morning and evening. This way saves a great deal of time to the women, and it dries the fruit faster, so that the flies and bees are not of any trouble. If any one tries it once, they will never do without if they dry fruit.

For the Western Pomologist:

Fertilizing Grapes. Why some Operators Fail.

To produce marked changes in any grape by mere seed planting is a very slow and uncertain process. But to put the pollen of one variety on another is a rapid and an almost certain way to get a new grape. Such changed grapes are called "crosses." I am persuaded that most who attempt to make crosses use too much pollen, and therefore, I call serious attention to the way Dr Rogers of Salem, made his crosses. He cut off the anthers of one vine and put a cut off cluster of another in a fine cotton bag, about the cluster to be fertilized. Thus he used but little pollen and in the natural way, and hence his success. The rough hand and load of pollen commonly used is fatal to success. Perhaps love is not to be forced in a grape more than in man, or the happy product of a fertilization. I could name failures by the score, by this neglect. Then if my reader wants a new grape, seek it by a natural cross, made by diffused pollen.

S. J. Pakrer, M. D.

Ithica, N. Y.

Red Spider.—The *ad interim* committee of Illinois State Horticultural Society report great damage done, in the northern part of the State, by a new (?) Acarus, or Mite. We presume they have got hold of that most troublesome pest, the Red Spider (Taombidium telarium, Hern), which is pale yellow when young. The young of most mites differ much from the adults, and many of them are six-legged instead of eight-legged, as they afterwards become. This mite is always injurious during hot, dry weather, and a good rain will soon diminish its number.

Grafting Pear upon Thorn.—The proper Stock to use.

The question of growing pears upon our prairie soils upon trees grafted in pear or quince root, seems to stand about like this:—We have paid tens of thousands of dollars

to eastern growers of pear trees during the years past, and our remunerative crops of pears so far have been like angel's visits—few and far between. Isolated trees in favorable situations, have seemed healthy and promising for a few years, but sooner or later the mysterious blight attacks them and away go our hopes and a big slice of our pear-growing faith. The best guesses we have had in regard to the causes of blight are not perfectly satisfactory; yet upon one point all seem agreed—any plan, as root pruning, sodding the ground with grass, paving under

the trees with stones, &c., that shortens the natural supply of sap from healthy pear root, *lessens the liability to blight.* In the garden of the earnest, methodic amateur, who has plenty of time and perseverance, Dr. Hull's plan of root pruning would no doubt prove very satisfactory. The masses, however, with their main attention given to other matters than fruit growing, will be more likely to get a supply of pears by grafting or budding upon some stock that naturally supplies less sap than the pear. Very numerous experiments have been tried at the West in working the pear upon the thorn. When thus worked upon the common bitter Haw of our thickets, the union of the pear with the thorn wood has not usually been very perfect, and the trees have not been very long lived, though usually very productive while they did live. In cases, however, where suitable varieties of the pear have been budded or grafted upon thrifty young stocks of the large free growing thorn, with edible fruit found along our streams and river bottoms, the success has been the most perfect. Trees in Illinois, worked over twenty years ago, are still in a perfectly thrifty condition, and for a number of years have borne large annual crops. Our horticultural authors and editors have not favored the idea of grafting pear upon thorn for the reason that it was extensively tried in Europe a few years since and failed to give satisfaction. With us the case is different. Their trial was upon the English Hawthorn. Our western thorn is of itself quite a large free growing tree. We have native specimens here upon the Cedar river fully thirty feet in height and fifteen inches in diameter, looking like aged pear trees. When the pear is worked upon this stock, the thorn trunk influenced apparently, by the pear growth above it, attains to a greater than natural size. The famous pear tree worked upon thorn in Ohio, has a thorn trunk of nearly seven feet in circumference.

There are several varieties of the thorn, most of them of free growth. The variety most common and best for the pear is described by Torrey and Gray as a variety of Ceratagus Coccinea, (variety molles). In Prof. Asa Gray's newer work, it is more properly classed with Crategus Tomentosa, or Pear Thorn. The sharply toothed leaf of this thorn, is shown in the annexed large cut in contrast with the leaf of the common bitter Haw of our thickets, shown in the small cut which is unsuitable for a pear stock. In a succeeding number I will contribute a few notes in regard to best methods of working pears upon thorn, best varieties of pear for this purpose, &c.

Jos. L. Budd.

Shellsburg, Iowa.

For the Western Pomologist.

Fall Planting—Rabbits and Protection.

We have found that in all climates where the thermometer does not fall much below zero, say only a degree or two, that fall is as good a time to plant trees of any kind as spring. In fact, apples do better then than at any other time; and even peaches, cherries, plums, grapes, pears, etc., if mulched with straw where the snow does not lay upon the ground long at a time, do equally well. Now is the time to order from the nursery. Be sure you send to a reliable party, and agree with him not to substitute *other* varieties for those you order, in case he has none of the kind you want. Plant your trees in good, large openings, mulch and stake well, and examine them from time to time through the winter to see that field mice and rabbits are not gnawing them. If mice trouble, put a little arsenic in meal under the straw; and *before* rabbits begin their depredations, take a liver, or piece of bloody meat, and smear the trunk of the tree a foot up from the ground; or tie corn stalks around it at the ground, a foot long. One man can tie two hundred trees in a day. When spring opens, cut them away, loosen up the earth around each tree, and scatter some ashes around; coal ashes are as good as any.

Woodman.

Stanford, Ky,

Preservation of Fruit.—A Miss Peck, of Chester, Mass., claims to have discovered a method for preserving fruit for any length of time, in its natural shape, and preserving its natural flavor, at about one-tenth of the cost of canning. She has applied for a patent.

Dr. Wood, of Philadelphia, has discovered that peach trees die for want of potash in the soil. As a remedy he "lyes wilfully and persistently," as H. G. says.

Pears and Grapes.

We have fruited this year over 30 varieties of pears, and about as many varieties of grapes, and have carefully watched the growth and time of ripening of the fruit from both trees and vines. In common with all other kinds of fruit, they have suffered greatly from drought. This has been very severe, and we have reason to fear that permanent injury has come to our trees. Pears and grapes have ripened prematurely, and in many cases imperfectly, and the quality of the fruit is affected. We can, however, judge in a measure of the comparative merits of the different varieties, and, in the light of past experience, are able to name those best adapted to our climate. In New England we must make our list of really good pears, which can be successfully and profitably grown, much shorter. In three orchards of 100 trees each, on different soils, and with different exposures, and subjected to similar treatment, we find great differences in the thrift and productiveness of trees. There are not more than 10 varieties which will flourish upon our soils. The Glout Morceau is a failure with us, and so are most of the so-called "winter varieties." There are but few of these that do ripen before Christmas under the best conditions for keeping that we can devise. The Bartlett, Duchess: Seckel, Buffum, Louise Bonne de Jersey, and Swan's Orange are the varieties that do best in our orchards. The only early pear really worth cultivating is the Doyenne d'Ete. This is indeed a delicious little pear, and we get a taste of its rich qualities by the middle of August in ordinary seasons. It is rather a vigorous stock, but it needs a moist, retentive soil in which to grow. Osburn's Summer Seedling is only fair, and it is later than the Doyenne.

Among the new varieties of grapes, the Adirondack is worthy of praise. We have fruited it three consecutive seasons, and it is the earliest and sweetest of all our varieties. It has also proved to be a good bearer, hardy, and the fruit holds well on to the stem. It is a magnificent grape for wine, affording a variety resembling true Malaga. It is so exceedingly saccharine that it needs to be watched closely and handled intelligently, in manipulating for wine. The Israella, of Grant paternity, is also a good and early grape. It closely resembles the Adirondack, but is inferior in several respects. The Israella is upon the whole a failure. The clusters are beautiful, and the grape a good one; but it ripens late, too late for this locality, and then the ripening is singularly uneven and imperfect. We have bunches which contain berries fully ripe, others partly ripe, and still others as hard and green as Concords in July. This grape will not do for this section, and we doubt if it prove entirely satisfactory in any locality. The grape and pear crop is abundant this year.—*Boston Journal of Chemistry.*

The Borer and the Curculio.—W. B. Wilkes of Aberdeen, Miss., says in the *Model Farmer:* "The apple and peach borer, and the curculio, all so destructive in orchards, increase with astonishing rapidity, in the absence of pigs to eat the diseased fruit as it falls, and destroy the worms of all kinds. We know by experience that an apple or pear will never grow healthy where either has grown and decayed; neither will a peach grow where one has formerly stood, but an apple or pear will grow where a peach lived and died, and the peach will thrive where the apple or pear grew.

If they are so mixed, the orchard soon presents an unsightly and ragged appearance. The difficulty of growing the same kind of tree on the same soil presents so interesting a field for discussion that the subject will be defered till the next communication.

The Flower Garden.

November Work.

Hyacinths in Winter.—Ease of management renders the Hyacinth one of the most desirable flowering plants that graces the parlor and drawing-room during our long, desolate winters From the simplicity of its management, and the facility with which it may be forced into bloom, the Hyacinth has become exceedingly popular as a winter flower. A light loam, rather sandy, enriched with very fine rotten manure, makes an excellent compost for potting this and other winter blooming plants. Leaf mould from the forest, with sandy loam, makes the best of plant-potting material. Hyacinths have been successfully grown in a drawing-room in this wise: A quantity of moss was placed in a water tight box about eight inches deep, into which the bulbs were placed and duly watered.

Dahlia Roots.—These, to ripen up well for winter preservation, should remain in the ground until the foliage of the plant is withered and dead, Let them remain in the ground as long as the weather or season does not threaten a final freeze up. They should be taken up in a dry day, and at once exposed to the sun until well dried, so the adhering earth will brush off freely. Then pack in dry sand, intermixed with a little air slacked lime, place the box in a dry, cool cellar for the winter. Many fail in preserving their Dahlia roots fresh and sound through the winter from various causes. If kept too moist, or at an undue degree of temperature, decay and rot speedily follow. To insure success, the roots must be packed in some kind of material that will exclude the air and not imbibe but little if any moisture. If hung up, or laid upon shelves exposed to the open air of the cellar, they are very sure to wither and lose their vitality. As with potatoes and other vegetables, the lower the temperature above the freezing point where kept, the better.

For Cannas.—Follow the sameections dir for wintering as given for the Dahlia. They should be taken up earlier, however. We are inclined to think that a *slight* freeze or frosting of the leaves of the Canna is injurious to the roots.

Herbaceous Perennials.—As Phloxes, Dielytras, Paeonies, &c., if of more than one year's standing, should be taken up early this month, divided and re-set.

Parlor Plants.—Remove all dead leaves from plants for the winter, dust and wash the plants, and tie up to rod if need be.

Protect tender Roses.—Bind straw around them, or lay down and cover with earth, or straw. All half hardy plants, or shrubs, should be protected in like manner. We find a covering of earth with a little straw throw upon it, the very best protection for the rose. Herbaceous perennials should also have a slight covering of straw to protect them from sudden extremes of winter.

A little attention to the hints here given, if acted upon in due time, may save a deal of loss, to say nothing of grievious disappointment on the return of spring. We always hear more or less complaint from the inexperienced in wintering bulbs and roots, especially those of the Dahlia and Canna. What little we know about it has cost us dearly.

Climbing Herbaceons Perenials.

Everlasting Pea (*Lathyrus latifolius.*)—A very desirable summer climber, very profuse in flowery, a much neglected plant.

Chinese Yam (*Dioscorea batatas.*)—This plant, of which so much was expected as a valuable culinary root, has had the misfortune of at first being over-praised and then under-rated. It is, however, well worthy of praise for its mere ornamental beauty, for a covering for arbors, &c. It spreads with great vigor, covering a large surface in a few weeks; and while the roots are perfectly hardy, they possess the additional merit of affording nutritious food. A plant combining these qualities merits attention, and should not be consigned to neglect.

Virgin Bower (*Clematis.*)—There are many species and varieties of this plant in cultivation, some of them with brilliant flowers, mostly blue.

Passion Flower (*Passiflora Incarnata*) and double Convolvulus (*Calysteyia pubescens.*) Both of these climbers, although desirable in a collection, are inclined to spread and to send up suckers from the roots, so that they are apt to become troblesome in some situations.

Climbing Furnitory (*Adlumia cirrhosa.*)—A native plant of very delicate foliage; requires to be grown in a shaded place where it can find support on a low trellis.—[*Report of Com'r of Agriculture.*

Conover's Colossal Asparagus.

The editor of the *Horticulturist* reports that he has examined the original plantation of this variety at Jamaica, L. I., consisting of four acres. The ground was not rich—the plants stood four by five feet apart. The stalks measured a full inch in diameter—being fully double the size of the common sort on adjoining plantations, which were a year older, and richly manured. There is no question that the large size of the Conover was owing to the ample room given to each plant, namely, twenty square feet to every plant, according to the statement we have quoted. We have seen the common sort, planted in good soil at ordinary depth, but with wide space, much larger than that growing in deeply prepared and enriched beds, but closely crowded. The practice of making asparagus beds two or three feet deep, and with copious admixtures of manure, induces the owner to try for a large crop by close planting, and the consequence is small stems. Those who purchase plants of the new sort and plant them too thickly together, will be likely to lose a part of its advantage in large size.

For the Western Pomologist.

"Hardy Offspring."

In the September number of the POMOLOGIST, Dr. Stayman says: "For as we improve the quality of the fruit we weaken and debilitate the constitution, as strong continued mental effort weakens and debilitates the body."

This is a very important suggestion, and ought to be candidly, carefully, and cautiously discussed, I am free to acknowledge that much of the practice of *improvment* has been so erroneously managed as to weaken the constitution, both of vegetable and animal; but I fully believe it could have been otherwise. When Mr. Harrington proves that a seedling of the Delaware grape is more vigorous and hardy than its parent, Dr. S. says that probably some ancestor was more healthy and hardy. This opens the question of how far back we ought to go towards the first creation? I am of opinion that some of our varieties of grapes and apples are now as healthy and hardy as their parentage ever were, excepting in some isolated case, in the roll of ages and generations, we might have exceeded. The Catawba grape is generally admitted to be a native wildling, and many of its offspring are more healthy and hardy than the parent. The class of Russian apples we must believe, are as healthy and hardy as their original type. My Siberian Crab trees are not as healthy as many of larger fruited European and American varieties.

Downing says apple trees in New England more than 100 years old, more than 12 feet in circumference and have borne in a single year more than 100 bushels of apples. I do not believe the native nor European crabs are as healthy and hardy as that, nor are they as large and productive. What is health? If it is not size ought it not to be *age?*

"So the untutored Indian." I am of the opinion that neither the Indian nor African can endure as hard and constant labor as our own white men. Take the hardships of the army, the uncultivated men fail first, provided, always, that cultivation has been attended with *a care for their physical cultivation as well as mental.*

The above is the secret of so much physical decay. Well has Dr. S. suggested that this balance of improvement ought to be kept up. Improve the tree as well as the fruit,—improve the body as well as the mind. Breeders of animals begin to understand this importance and give it proper attention. But of the propogating of new varieties of fruit, we know but little about the laws of health in reproduction. Who has attempted to raise a healthy and hardy apple tree by scientific and intelligent reproduction?

But shall we decline in health and become extinct by improving the mind? I believe not those who are educated at our horticultural colleges! Dr. Stayman says, "why have the many extinct specimens which geology proves, ceased to exist?" Answer: for the want of the cultivated and wise directed hand of man to prolong their existence. Who does not believe with me, that where man will fully investigate the subject, he can give essential aid to the laws of nature in improving the health, and prolonging the life of both animal and vegetable beings which the kind Creator has intrusted to his care. And to nothing does this remark apply with so much force and consequence as to himself. SUEL FOSTER.

Muscatine

For the Western Pomologist:

High Cultivation for Trees.

Formerly the belief was entertained by the foremost fruit growers, that a high state of cultivation was necessary to produce thrifty trees and a desirable quality of apples. Recently, that belief has been assailed fiercely, and, perhaps, under some circumstances, justly. We lost some very valuable trees by winter killing, a few years ago, which we attributed to the late growth produced by high cultivation. Our orchard soil was rich in all the natural elements of the drift period, to which was added a liberal dressing of barn-yard manure. No other orchard of young trees suffered to the same extent in this vicinity, and their freedom from injury was assigned to negligent care through the summer. Hence, this isolated case has been cited as proof positive against cultivation. But this one case should not establish a fact.

By careful attention, we are prepared to believe young trees, before fruiting, should have but little manure about their roots, unless on very light soil; but bearing ones will require a considerable quantity, if properly applied. Not thrown up round the trunk of the tree, for the escaping amonia to lixiviate the bark, but scattered, so as to nourish the feeder roots.

The past winter was severe on all kinds of trees. Our trees, which were well cultivated, received less injury than those growing in sod, which may offset against our former case. The Yellow Bellflower and Siberians suffered most severely. Trees we cultivated by planting between rows in potatoes, came through the winter unscathed. We have succeeded best by planting a crop among trees that required a good share of attention in the early part of the season. Plowing and hoeing should not be permitted later than the first of July; then the fall growth will not be greater than a tree of healthy vigor will require.

The general failure of fruit in this section makes one feel sombre, but is re-assured when he reflects that this is the first time in twenty five years.

OBSERVER.

Urbana City, Appanoose Co., Iowa.

Early Peaches—The "May Beauty" and "Yellow St. John."

A correspondent of the *South Land* writing from Baton Rouge, La., believes the earliest and finest peaches in the New Orleans market the past season, were what is known as the "May Beauty," and wishes to know where the trees may be obtained.—The same writer finds "Hale s Early" some fifteen days later in ripening with him than "Early Tillotson." Would like to hear from others who have fruited "Hale's Early" at the South, as it has generally been regarded the earliest of the two at the North, and has been so with Mr. Berckmans of Ga. Thinks if this peach is adapted to the extreme South, a spurious variety has been disseminated in his section. To these queries the editor of the *South Land* replies by saying:—

"The "May Beauty" can be obtained *pure* from any of our leading nurserymen in Mississippi and Louisiana—also, the "Yellow St. John," a variety supposed to be more productive than the first named peach; as early, and of equal quality. "*Hale's Early*," thus far, has not given our fruit growers satisfaction. In eastern Louisiana and central Mississippi it ripens with the "Tillotson"—no earlier—and is not equal to that really fine variety. In many parts of the North and West, it rots badly on the tree, and has rather fallen into disfavor. We have great confidence in the opinion of our friend Berckmans, on everything connected with pomology, and fully believe all he says about the *Hale* in Georgia—but our observation and experience in the country bordering on the Gulf changes the *status* of *Hale's Early* materially. Of late we have seen and published something about the benefit of treating this particular peach with a "wholesome neglect"—allowing the lands around the trees to grow up in grass, weeds, etc.; with the view of forcing the trees into full and healthful productiveness. This system *may* do with *this* variety; it is very easily tried; and we recommend it to those who have failed of success through over manuring and extra culture—the number of which, we imagine, is not very great throughout the country generally."

THE PEACH CROP.—Edmund Morris of Burlington, N. J., writes in Tilton's Journal of Horticulture, that, the present abundant season, over 500 bushels of fruit have been picked from a hundred and fifty trees of Troth's Early. He thinks five million baskets will be shipped from Delaware. "The Messrs. Corbitts, with 350 acres, will ship 90,000 baskets of three pecks each. Mr. Fennimore will ship 30,000. Last year this gentleman was the only one who had any peaches, and his crop of 4,200 baskets averaged him six dollars." He states that the orchards which die out early, or in five or six years, are neglected and receive little or no cultivation, the want of which is certain to ruin a peach orchard. Where the owner does his duty by his trees, they bear from fifteen to twenty years.

Keeping Cider.

As cider time is at hand, we publish the following information as to its proper manufacture, furnished us by a friend, which will be of much use to those who will give it due attention, in enabling them to secure a better quality of this delightful beverage. Our friend says "that much of the excellence of cider depends upon the temperature at which the fermentation is conducted, and is a point greatly overlooked by the manufacturers of this liquor. As soon as expressed from the fruit, it should be strained into sulphured casks and placed in a cool situation where the temperature does not exceed 50 deg. Fah't—if left in the heating sun much of the sugar is converted into vinegar by the absorption of the atmospheric oxygen, and thus the liquor becomes acid and rough. On the contrary, if the fermentation be conducted at a low temperature, nearly the whole of the sugar is converted into alcohol and remains in the liquor instead of undergoing the process of acetification.

The acetous fermentation of the conversion of alcohol into vinegar proceeds most rapidly at a temperature of 95 degrees Farenheit, and at a lower temperature the action becomes slower, until at 46 degrees Farenheit no such change takes place. Independently of differences in the quality of the fruit, this is the principal cause of the superiority of the cider made by one person over another, living in the same neighborhood. The one has a cooler cellar or barn than the other to store his cider in. In practice it has been found that sour and rough apples produce the best cider. This arises because they contain less sugar and more malic acid, and the presence of the latter impedes the conversion of alcohol into vinegar, but cider made with sub apples can never equal in quality that prepared at a low temperature from fruit abounding in sugar, which, if properly strained or racked at every indication of fermentation, will keep good twenty years.—*Knoxville* (Tenn.) *Whig.*

Pear Blight—Yellows in Peach Trees.

William Saunders writes a Maryland correspondent of the best way to treat his pear trees. All observations prove, however, that luxuriant growing trees, or rather those that make the late fall luxuriant growth, are more liable to blight than are those which mature their growths perfectly before winter. Whether your trees were rendered more liable by the manuring you gave them, is a question worthy of investigation. I think it quite probable.

I have learned to be careful with regard to a very strong growth. I have abjured all summer pruning or pinching in any shape, as I found but little if any benefit from it, so far as encouraging fruitfulness, and it certainly tends to the late secondary growths which do not become thoroughly ripened. Even winter pruning is apt to encourage a heavy growth of young wood, which prevents the formation of fruiting spurs on the branches. I have, therefore, in a great measure, abandoned pruning of any kind, in any season, only doing it so far as thinning out the branches. One rule I now follow strictly with all trees that bear fruit, and that is, never to cut back a leading branch either summer or winter—that is, I never cut back or stop a shoot; as already mentioned, I thin out when necessary, and I do that at any convenient season, but prefer winter, because I get a new shoot from the cut part, which takes the place of the one cut out, and enables me to cut out other branches that lose their fruiting spurs on the lower portion of the stem. This is analagous to the renewal mode of grape pruning. Were the trees in the orchards standards, say 18 or 20 feet apart, and dwarfs, say 12 to 14 feet apart, I think I would not prune at all. When once the tree has fairly started with a good head, *let it grow;* of course, the fruiting spurs would be always most plentiful near the extremities.

I also have, in a great measure, refrained from cultivating or working among the trees. This, however, I would always regulate according to the wants of the trees. So long as they made moderately good growths, I would keep the orchard in grass, but would consider it quite good treatment either to manure on surface, or break up the ground when trees became stunted or failed to make a healthy growth.

I have now great faith in washing the trunks of the trees with a mixture of lime and sulphur. I place a peck of lime and two pounds of the flour of sulphur in a vessel, and slake it with water, same as for a fence wash. If the white color is objectionable, it can be colored.

The blight being a fungus growth, and lime and sulphur being certain destruction to "fungi," I am hopeful of success by its use on the main trunk and principal branches of the trees. We can all notice that trees around hotels and taverns, that have been whitewashed for years, preserve a clean, fine bark, and we know that it cannot injure the tree, as the outside bark is not vital to the plant. I have stopped the spread of the blight on the bark by this mixture, and it may be that we will find it a good general practice.

Mr. Saunders also advances the following opinion concerning the "Yellows" in peach trees, which so well tallies with the experience of every intelligent cultivator we have ever met, that we think the real cause is discovered at last:

"I am clearly of the opinion that the great drawback to the peach, is that it very seldom has a chance to fully ripen its wood. I mean that it grows so continuously, and sometimes very luxuriantly, until its foliage is suddenly destroyed by frost. There is no gradual change of color in the foliage during autumn, followed by natural fall of leaves before cold weather, as we see in most other trees, but, on the contrary, the trees maintain their *green* foliage, and pushing out young leaves, until a severe frost occurs and completely checks growth. This sudden check, and its effects upon the vitality of the plant, produce, in my opinion, the disease called "yellows." I have long held this opinion, and have many facts to bear out the supposition.

"It is evident that the culture given the peach, at all events, after ripening of the fruit, should not be of a character to encourage wood growth. It might not be advisable to allow weeds to grow, but I doubt whether there are many cases where anything more than mowing the ground over to destroy weeds is required after the crop is gathered.

"And as to whether plowing should be necessary in early summer or not, I would be guided by the appearance and general health of the trees. While I am not prepared to advocate laying down peach orchards in grass, I would certainly not cultivate among the trees with anything beyond a common hoe harrow, merely to stir the surface and prevent growth of weeds, without disturbing or breaking the surface roots."—*Practical Farmer.*

Influence of Stock on Scions.

Undoubtedly there is a large field open for research and experiment, which, if followed with zeal and keen observation, must be attended with results destined to work no small improvement in our hardy fruits. The beginning of this, in some instances, has been brought about by a desire to substitute one variety or fruit for another without destroying the existing stock, improvement in size and quality being quite unlooked for. But the mysterious action and influence exercised by the stock has not only improved the size, but sometimes the flavor and character of the variety substituted has undergone great changes. I have a Chaumontel Pear, on a branch of which is grafted a Maria Louisa, and I have noticed, for two seasons past, a great difference in the size of the fruit of the latter from this graft, in comparison with that of the same variety in the same garden, single grafted, those from the Chaumontel being considerably the finest fruit. More than this, they were from two to three years later in coming into use. It is well known that pears are very capricious, some varieties doing exceedingly well in some places and in others altogether indifferently, proving, in fact worthless; and there is every reason to hope that by a scientific examination of the subject, and by a careful noting of the primary scions employed, at least some of these capricious varieties may be induced to succeed with a profitable result in localities where, at the present time, they are looked upon as being anything but desirable.—*London Gardener's Journal.*

Sulphur for Grape Mildew.

Under this head W. J. Flagg contributes an article to the Transactions of the Ohio Horticultural Society, the following of which we copy from the *Country Gentleman:*

"An article, contributed by W. J. Flagg, gives full details of his successful experiments in preventing mildew in vineyards by dusting with sulphur. The reason why this remedy has not proved successful with others, he states, is a want of *early* application and its frequent repetition afterwards. The sulphur must be first blown upon the vines at the first moment of the appearance of the mildew, or even before its appearance. Two or three days may be too late. It must be repeated every twenty days. It will fail if washed off by the rain before its effect is produced. It must not be mistaken for black rot, which sulphur will not cure. Mr. Flagg set out fifteen acres of Catawba vineyard, which bore fruit in 1861, and for three years they did well. In 1864, the rot took a tenth part of the crop. The next year, its increase woke him up. After expending $1,700 on his vineyards, he gathered only enough to make a barrel of wine. He was then absent three years in Europe. On returning, he found his crop had been ruined by mildew. He began early in the season and with poor tools to apply sulphur, and got through five acres in seven days. The operation was repeated several times, the last on the 8th of August. It was successful; the disease was driven off, and two-thirds of the fruit saved. The vineyard was then drained, top dressed, pruned and cultivated well. By means of a bellows and sieve, the vineyard was sulphured seven times, with seven barrels of sulphur, costing $140, or $31 per acre. He thinks that by carefully watching the approach of the disease, three sulphurings would answer, and expense saved. The second year the bellows offered in market for blowing sulphur, which were pronounced ingenious "contrivances to keep sulphur away from the vines," were thrown aside, and he procured tinned wire gauze and made several bellows on the Vergnes plan, having no valve, the air being drawn in through the same hole by which it went out, keeping the sieve always free from obstructions. With these, the labor, which was almost unbearable and very slow the first season, was done with great ease and facility. The results of his experiments and the means by which he reached them, are commended to the attention of vineyardists who have suffered by the mildew."

Entomologist

Dangerous Insects.

There are two small insects whose bloodthirstiness goes so far as to make them the terror of man and beast alike. The one is the famous Tsetse of Africa, a fly not larger than a house fly, but whose bite is certain death to horse, ox, and dog, while the poison has no effect on man or wild animals—one of the great mysteries of nature, which neither savant nor traveler has yet been able to solve. The other is simply looked upon as the genuine offspring of Beelzebub, the father of flies, and often called his own. It is a small fly, which has its home in the vast marshy plains of Hungary, from whence it comes forth in April, wanders over a large part of the kingdom, and vanishes again in the month of June. When they are wandering they often fill the lower strata of the atmosphere so densely that, at every breath, mouth and nose are filled with hundreds.—If a herd of cattle is overtaken by them, it is lost. The thirsty creatures press without ceasing, into mouths, nostrils, ears and eyes, and quickly fill every opening till far into the interior of the body, so that death must ensue. During damp or rainy weather the cunning flies hide in the limestone grottoes, with which that country abounds; but as soon as the sun shines out again, their immense hosts also break forth once more, and set out on their wanderings. When the cloud is seen from afar, the cattle run in wild terror to the stables, the plowman unhitches his horses, and follows at a full gallop, the sheep are driven to their stable, and all windows and doors are closed as tightly as possible. And if flight is out of question, hundreds of horses and oxen, of hogs and of sheep, have been known to perish under this terrible affliction.—*Hours at Home.*

Animalcules.

If some hay is placed in a glass of pure rainwater, and allowed to soak a few days in a sunny place, and if it be then removed, the water will be found, under a powerful misroscope, to contain many very small moving things which are called infusoria, from their being produced after infusing the hay. The eggs which were on the hay bred there myriads of small things, which often have a very beautiful coat of transparent flint of silica. If the water is kept clean, and is not allowed to decompose or smell, generation after generation of the infusoria live, die, and fall to the bottom of the glass. They form a very delicate film there, and minute portions of it, when examined under a high magnifying power, show the silicious skeletons or shells very distinctly.

Now, many strata in the earth are formed entirely of the remains of infusoria, and a very familiar example is the Tripoli powder, from the polishing slate of Bilin, in Bohemia. A single grain of Tripoli powder contains no fewer than one hundred and eighty-seven millions of the transparent, flinty skeletons of dead animalcules; yet the layers of earth which are made up of them at Bilin extended for miles.

In the harbor of Wismar, in the Baltic they increase and multiply at a great rate; for seventeen thousand cubic feet of mud are formed every year there, and every grain of it contains one billion of the beautiful silicious remains of the infusoria. In the island of Barbadoes there is a thick mass of the most beautiful flinty sea animalcules, and they are in such numbers that it must be supposed the dead minute things were constantly falling in shows from the sea to the bottom.—*Engineering Magazine.*

Stages of Insects.—All insects pass through three well-marked stages, called the larva or maggot, grub, caterpillar; the pupa or chrysalis, and the imago, when the insect has reached adult life and can propagate its species. The house-fly lays several hundred eggs, from which the larvæ are hatched probably within a few hours after they are laid, as the fresh fly lays its egg with the embryos so far advanced that they hatch before they are expelled from the body of the parent fly. These eggs are dropped by the house fly in the ordure of stables, probably in the early part of summer. The maggots require several days—we do not know just how many—to acquire their full size. At this time they are cylindrical, smooth and shining fleshy worms, and four lines in length. The head is small, partly concealed within the body, and armed with two horny hooks, with which they seize their food, which undoubtedly consists of decaying animal and vegetable matter.

Miscellaneous.

How Foreign Raisins are Made.

The Muscatel is the finest kind of raisin imported. The preparation of drying, upon which the value of the fruit to a great extent depends, is in its case conducted differently from that of the most common kinds. Usually the grapes are gathered in bunches when fully ripe, and hung and spread out to dry. These are afterwards placed in vessels full of holes, and dipped in a lye made of wood ashes and vanilla, with the addition of a little salt and oil. This brings the saccharine juice to the surface, and causes the dark brown color as well as the crystalization of sugar, which is so characteristic in the cheaper fruit. The best varieties are simply dried in the sun before removal from the tree.

The fruit is carefully watched, and when at the proper stage of ripeness, the stalks of the bunches are partly cut through and allowed to hang till dry, the fruit by this means retaining its bloom, and being a light color when dry. Among the many varieties of raisins known in commerce, are Valencias, Denias and Lexias from Spain, and Malagas and Malaga in Grenada. All these varieties of fruit are imported into this country in boxes and half boxes.—*Ohio Farmer.*

The Persimmon.—According to a writer in a North Carolina paper, the persimmon is one of the most valuable of trees. Rum, wine, and beer, says this writer, can be made from the fruit, and a bushel of persimmons will yield a gallon of rum. To make wine the fruit is peeled and stoned. Further, this writer says: The bark is a fine astringent, styptic, tonic, and antiseptic, used in sore throat, fevers, chills, and dysentery. Its antiseptic qualities have been considered full equal to the Chinchona. It is more astringent than cornine (dog-wood bark) or quinine.—The ripe fruit will expel worms from children. The wood is hard and fine-grained suitable for tools, and many domestic articles, and when large enough may be employed as a substitute for Guayac wood. It is certainly one of the most useful trees in our country.

The Camphor Tree Sumatra.

Among the most luxuriant and valuable trees of the island of Sumatra the first place belongs to the *Dryobalanops camphora.* The tree is straight, extraordinarily tall, and has a gigantic crown, which often overtops the other woody giants, by one hundred feet or so. The stem is sometimes twenty feet thick. According to the natives there are three kinds of camphor tree, which they name "mailanguan," "marbin tungan," and "marbin targan," from the outward color of the bark, which is sometimes yellow, sometimes black, and often red. The bark is rough and grooved, and is overgrown with moss. The leaves are of a dark green, oblong oval in shape, and pointed; they smell of camphor, and are besides hard and tough. The outward form of the fruit is very like that of the acorn, but it has around it five petals; these are placed somewhat apart from each other, and the whole in form much resembles a lily. The fruit is also impregnated with camphor and is eaten by the natives when it is well ripened and fresh.

The amazing hight of the tree hinders the regular gathering, but when the tree yields its fruit, which takes place in March, April, and May, the population go out to collect it, which they speedily effect, as, if the fruit be allowed to remain four days on the ground, it sends forth a root about the length of a finger, and becomes unfit to be eaten. Amongst other things, this fruit, prepared with sugar, furnishes a tasty comfit or article of confectionary. It is said that it is very unhealthy to remain near the camphor tree during the flowering season, because of the extraordinary hot exhalations from it during that period. The greater the age of the tree the more camphor it contains. Usually the order of the rajah is given for number of men, say thirty, to gather camphor in the bush, belonging to territory which he claims. The men appointed seek for a place where many trees grow together; there they construct rude huts.

The tree is cut down just above the roots, after which it is divided into small pieces, and these are afterwards split, upon which the camphor, which is found in hollows or crevices in the body of the tree, and above all, in the knots and swellings of branches from the trunk, becomes visible in the form of granules or grains. The quantity of camphor yielded by a single tree seldom amounts to more than half a pound, and if we take into account the great and long-continued labor requisite in gathering it, we have the material reply to the question why it fetches so high a price. At the same time that the camphor is gathered—that is, during the cutting down of the tree—the oil, which then drips from the cuttings, is caught in considerable quantity. It is seldom brought to market, because probably the price and the trouble of carriages are not sufficiently remunerative.

Whenever the oil is offered for sale at Baros, the usual price is one guilder for an ordinary quart wine-bottleful. The production of Baros camphor lessens yearly; and the profitable operation of former times, say in the year 1753, when fully 1,250 lbs. were sent from Padang to Bavavia, will never return. Since time out of mind the beautiful clumps and clusters of camphor trees have been destroyed in a ruthless manner; young and old have been felled, and as no planting or means of renewal has taken place, but the growth of the trees has been left to nature, it is not improbable that this noble species will ere long wholly disappear from Sumatra.—*Journal of Applied Science.*

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Pomology, Gardening, Forestry, Horticulture, Rural Architecture, Bees.

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Color and Hardiness of Plants.

That color was a true index of the health and hardiness of plants, we were convinced many years ago, by experience and observation. Some six years since we commenced a series of articles on the *Health and disease of plants*, first published in the *Horticulturist*, July, 1864, and subsequently in the *Gardeners' Monthly*, from which we make the following extracts, which show the position we then held.

"The darker the color of the bark, foliage, flower and fruit, all other things being equal, the more hardy and healthy plants are, and the greater will be their capabilities to withstand the various vicissitudes of climate, whether it is the sudden and extreme changes of temperature, unfavorable locations, or the direct rays of the sun." "Now, as high color is a representation of hardiness, health, and vigor, so, very light color is characteristic of tenderness, debility, and disease. Consequently, the lighter the color of the leaves, flowers, bark, and fruit, all other things being the same, the less vitality they have, and the more feeble their growth, and the more subject they are to the various vicissitudes of climate." "Any variegation of the foliage or bark of a negative character, shows incipient debility, disease and degeneracy. Even when the bark or foliage is much speckled with white, it produces an effect; but when they are striped or blotched with white, it produces a *marked* effect, which may be seen on those varieties. If there is any doubt upon this subject of variegated leaf plants, let him compare the variegated Balm, Lonicera, Vinca, Deutzia, Hydrangea Variegata, and Aurea, with those not variegated. The subject might be continued through all varieties of trees, shrubs, plants, and vegetation, with the same result." "The theory herein advanced explains why light colors and variegated plants are produced from darker colors, because, as the seedlings degenerate and become diseased, they change and variegate to light; this constitutional defect becomes, through several generations, hereditary and permanent, and when the *types* become *fixed*, they cannot revert again, because they have no power within themselves to absorb sufficient heat, electricity, and carbonic acid; they become paralyzed and incurable; their characters become local and conditional."

Notwithstanding the fact of these simple extracts, we found but one paper at that time admitting their truth, which the following quotation from the *Gardeners' Monthly*, of March, 1866, by Mr. Thomas Meehan, will fully show:

"We stand, we believe, entirely alone in sustaining Dr. Stayman's views. All of our cotemporaries who have noticed the subject at all, oppose it. It is not unfrequent—indeed, it is the rule, when any new subject of philosophical inquiry is presented, that controvertists mistake, the position they oppose, and hence mystify and obscure what otherwise would be clear enough. Dr. Stayman's views are going through this ordeal. The real matter is this: Paleness has long been identified with sickliness; that is to say, the pale man or the pale plant is not considered so hale and hearty as the ruddier neighbor, paleness being used as *a comparative term between* closely allied individuals. Varieties of fruits we class distinct from species of fruits; varieties of fruits are in fact precisely as individuals amongst men. No dozen children, from the same parents, are like each other; and no dozen seedling apples are more like their parent fruit than these. As the pale-faced child will generally be more tender than his brother who is darker, Dr. Stayman so shows the rule holds good with seedling fruits of the same individual families. This we believe to be our correspondent's claim to a new discovery, and no more, and they have our hearty endorsement. No writer has before put them into shape to be of practical use to cultivators, and Dr. Stayman deserves the credit of discovering a valuable rule in pomological science."

This candid and able review at that time by the editor of the *Gardeners' Monthly*, showed frankness, fearlessness, and independence. It was also consoling to us to find such a timely advocate to our cause, when we were entirely alone, and not yet established in the good graces of the public press, but were left at their mercy, which the following paragraphs show:

The *Journal of Commerce*, New York, 1865, said: "Are dark colored fruits the most hardy? A Kansas correspondent has, during the past two years, contributed a series of articles upon the affirmative of this question to the *Horticulturist* and *Gardeners' Monthly*, which are attracting more attention than they deserve." "He has not yet given us one iota of new and valuable information, or proved one item of his theories."

Reuben a critic in the *Horticulturist* 1865, said: "I, however, cannot think that the color of the petal of a flower, or the pellicle of the fruit has aught to do with the hardihood of the plant." Another writer remarked, *Gardener's Monthly*, 1866, "that if this new fledged science of the Kansas philosopher, were a living thing, the black man would stand cold better than the white, and the Black Hamburg grape be the vineyard grape, and the White Fox tribe of Maxatawneys, and Rebeccas only to be grown in hot houses or glazed structures; but as *we know this is not the case*, the animal is little more than still-born at the best."

The only merit of these remarks lie in these critics' own imagination. Notwithstanding their tirade of fancy and assertion, it appears that science slowly but truly has shown the "animal," although *still-born*, (if not resuscitated) *yet lives*. Mr. Edgar Sanders, in Prairie Farmer, August 13, says "that this variegation of foliage renders the plant more weakly, we are quite certain in the geranium, as well as probably all other plants, and we are the more convinced of this than ever from the beautiful golden blotched Abutilon Thomsoni, growing out of doors extremely slow, whereas in the green-house, it does quite well in the sum-

mer, provided the glass is partially shaded and the house kept moist."

Here we have the positive testimony of Mr. Sanders' experience, who no person will question who knows him. But to fully settle this matter in a scientific point of view, we find the following in the *Prairie Farmer*, copied from *Editor's Scientific Record* in *Harper's Magazine of September:*

"*Cause of variegation of leaves.*—According to Mr. Marnen, the difference in the color of the leaves of the variegated plants, which form so ornamental a feature of our greenhouses, is due to a disease which is at once contagious and capable of being transmitted from one species of plants to another, by a kind of inoculation. He considers that the alteration of the chlorophyll (which he compares to the red globules of the blood), or green coloring matter gives rise to variegated leaves, which consist of a mixture of green parts with others more or less yellow. If the discoloration is general, it produces death, variegation is a sign of organic disease; the discolored or variegated portions of the leaf have lost their power of reducing the carbonic acid of the atmosphere; the plants are generally weaker and smaller, their flowers and fruit much poorer, and their power of resisting cold diminished. Variegation can be propagated by means of layers, buds, or grafts, showing that the buds themselves are infected. The seeds, however, from variegated individuals usually produce normal and healthy."

Here Mr. Morren has given the result of his experiments with variegated plants, which are precisely the same that we gave more than six years ago, in almost the same language. Had his observations extended through the different orders of dark and light colored plants of the same species, he would have arrived at exactly the same result with them; for the reason that the light colored plants do not have the same amount of chlorophyll as the dark colored plants, consequently they do not have the same "*power of reducing the carbonic acid of the atmosphere.*" Or, in other words, they do not *absorb the same amount of heat, electricity, and carbonic acid*, because their *power of absorption is in relation to their color*, which we have before shown.

In concluding our remarks, we would ask a careful perusal of the within principles, for if true they will lead to a fundamental change in the production of new varieties of flowers and fruits. Hereafter we hope to be able to show that there is not only a law of variegation, but also a law of degeneracy, and we are now on the descending scale.

J. S. KAN. ED.

—The English elms on Boston Common still hold their orange-colored leaves, while the American elms have been leafless for weeks, as have been the maples.

For the Western Pomologist.

The Miner Plum.

Raising the Miner Plum from the Seed—More about its History—Grafting the Miner on the common wild stock.

A correspondent in the February issue, mentions the name "Miner," as applied to the "Hinckley" plum before any other. He gives as date Lancaster, Wisconsin, about the year 1856. Now I wish to show why Mr. Hinckley, deserves more to have the plum called after him than Mr. Miner does. I know, as far as any man can know, that Mr. Hinckley obtained this plum and grew it in Galena, about, or more than, 30 years ago. I have grown it upon my own place here 18 years. Mr. Hinckley—a very generous man—kindly gave to all who asked, sprouts or seed of the plum, and the recipients of his bounty brought the variety into this county, more than 24 years ago. Another correspondent says that Mr. Miner brought the plum 23 years ago, from Apple River country, Illinois. Mr. Hinckley distributed that plum—and particularly in Hanover, on Apple River, 25 years since. It is said Mr. Hinckley bought the plum from a tree peddlar in Galena, Illinois, and I have no doubt that he did so. We hear of it having been cultivated in Sangamon county, Illinois, 40 years ago, under the names of William Dodd, Chickasaw Chief, etc. We believe, at that time, it was an admitted fact in Illinois, that Mr. Dodd was the first man who brought it into that State. The same men who knew it then, by that name, now know it as the "Miner."

In your July number, a correspondent, describing the "Wild Goose Plum" as originating on the Cumberland river, in Tennessee, causes me to think that that plum is what we call the "Miner" from his description of fruit and tree; climate will make the difference in time of ripening. I hear of the "Miner" being cultivated under the names of "Old Hickory," and "General Jackson," in Tennessee more than 50 years ago. We know grand-children of men who first planted them in that State. When I was at Des Moines, last winter the wood of the "Wild Goose" was shown me, and it was identical with that of the "Miner."

I have taken great pains, this summer, to find the result of the propagation of the "Miner" from seed. The question was put to me at Des Moines, last winter when I was unable to give a positive answer. Mr. George Scarborough, of Sterling, Messrs. William and Henry Dickenson, of Sabula, and many others whom I have visited this summer, have shown me trees and fruit which they have raised from seed, standing, side by side, with those raised from sprouts, and there is no perceptible difference between the two, in wood or fruit. Therefore I can say from personal inspection that this plum is as good to raise from seed as from sprouts. On my own grounds I have trees, ten years old, "top-worked" on the *wild* plum; and I find that the "Miner," thus grafted, very little outgrows the original stock. *Mrs.* William Dickenson, of Sabula, has upon her grounds a number of very fine trees grafted just above the ground, upon the wild plum, and 12 or 14 years old, which have all the appearance of being long lived, and give abundance of fruit. I give the above names for reference. The "Miner" is only a few days later in blossoming than other varieties, so that it is not its tardiness which saves it from that destructive insect (genus Curculionidæ.) The Curculio *does* puncture the "Miner" plum, but, evidently from some peculiarity in the fruit, the larvæ, though they occasionally live, do not thrive in it. The "Miner" plum was first heard of from the Chickasaw Indians, at Great Bend, on the Talaposa Creek, somewhere near the north line of Florida, and the south line of Georgia. As the Northern Illinois Horticultural Society has adopted the name "Miner," I have nothing further to say against the name to describe *the* plum. I have sent out 400 packages of cions of this plum, in *this* State, free, and am willing to send out 400 more, providing parties apply before pressure of spring work comes on.

ALFRED GIDDINGS.

Sabula, Jackson county, Iowa.

The Hagloe.

ED. WESTERN POMOLOGIST:—If friend Budd had said (in the July number,) that the Hagloe apple had been disseminated "all over the West," as the Red Astracan," it would have been applicable to this part of the West in particular. I know several respectable nurseries in which it has been cultured as such. There is certainly a difference in size and color; the Hagloe being a blush on a paler ground. It is very hardy, and of rapid growth in the nursery, and makes a fine tree in the orchard. I got it, 12 years ago, as the "Red Astracan. It is a shy bearer with me, and others of my acquaintances. I bought the Duchess of Oldenburg, *as* the Duchess of Oldenburg, from nurseries in this State, 17 years ago, and I find it a better bearing tree than the Hagloe.

ALFRED GIDDINGS.

Sabula, Jackson county, Iowa.

Hale's Early Peach.

A writer in *Rural World* top-budded Hale's Early upon a seedling standing in sod. Three first crops of fruit rotted badly, but entirely free from rot the last season. Has since budded and set trees in orchard and cultivated with similar results. "The past season I had fine peaches—Hale's Early—on thrifty-growing, well cultivated trees, but three years from the nursery. Thirteen of Hale's Early producing more fruit than one hundred and twenty trees of other popular varieties, and the fruit entirely free from rot. I had supposed the rot in the Hale's Early was caused by insects, the Hale's Early being the only variety sufficiently advanced to invite their attacks. But this is mere theory with me, and I have no facts to support it."

Fruit in S. W. Missouri.

Ed. Western Pomologist: — Perhaps you may like to learn something of fruit in Southwestern Missouri. We have here a fine climate for fruit. As a general thing the winters are mild, though at times we have some sharp weather, from which some fruit trees suffer. Fruit of all kinds suited to this climate is quite abundant—apples, peaches, pears, plums, cherries, grapes, and all kinds of small fruits. We find in the orchards some good varieties of the apple, but there are too many inferior kinds. Farmers have not been careful enough in their selection and purchase of trees. Why not have the best of a product in such demand as apples? We have an excellent home market for all the fruit produced.

The peach is a failure here occasionally. Early in the spring the prospects for a large peach crop was good, but the April freeze cut it off. The trees are not long lived here—seven to eight years is about the extent of longevity of the tree. Cherries, grapes and plums all do well here. The favorite variety of the plum is called the Chickasaw. The forest abounds in wild fruits—cherries, plums, and grapes. Some of the wild grapes are very good. What are the most hardy varieties of the peach?

Thos. D. Hicks.

Osceola, Mo.

Remarks:—We do not know enough about the different varieties of the peach, to venture an opinion on the hardiness of any one or more of its varieties.

Letter from Washington Territory.

Western Pomologist:—As the First Annual Fair of the Washington Territory Agricultural Society closed on the 24th, I will give you a few notes.

This Society was organized under general incorporation laws of the Territory, about the 1st of October, 1869, as a joint stock company, with a capital stock of $25,000, divided into 1,000 shares. Since its organization, the old Walla Walla County Agricultural Society has ceased to exist.

One of the by-laws of this Society guarantees encouragement and aid to all auxiliary Societies for the encouragement of separate branches of agriculture, such as stock, poultry, pomology, horticulture, etc., proposing that each of these Societies assist in conducting their respective branches of industry at the annual Exhibition of the Agricultural Society. Under this inducement, the Pomological and Horticultural Society of Washington Territory was organized last June, and at one time thought of holding an exhibition in connection with the Agricultural Society, but finally gave it up as premature.

I have given you this outline of these organizations that you may see that we are going about our horticultural matters systematically, and believe we have a country and climate unsurpassed for the production of fine fruit, and hope, by a thorough organization of fruit interests, to make our *mark*.

The show of apples at our Fair embraced eight or ten lots, and were pronounced, by those who have traveled extensively, to compare favorably with any exhibit ever witnessed by them. The exhibit of pears was also very fine. Plums and peaches were represented, but owing to the lateness of the season, this crop was almost entirely gone.

The show of grapes is said by many who have attended fairs in California, to excel any exhibition they ever witnessed there. We saw bunches of Black Hamburg weighing five pounds, and of very fine form and style, and thoroughly ripe. Royal Muscadine and Red Traminer were a little past their best season, but still the show was very fine. Some twenty varieties of foreign and five or six of American grapes were exhibited, and all very fine of their kind. But the conclusion must be drawn from this exhibit that where such grapes as Black Hamburg and Royal Muscadine make their appearance as they did on those tables, Concord, Hartford Prolific, Delaware, etc., should not be cultivated.

The exhibit of stock, etc., was good, but as it is out of our line, we pass.

A. B. Roberts.

Wal'a Walla, W. T.

For the Western Pomologist.

The Season and Small Fruits.

Strawberries were not more than half a crop. The early part of their season was too dry, and the latter part too wet, hence shortness of the crop. Blackberries and raspberries full crop. Of blackberries Lawton takes the lead as a market sort. I find no other that bears shipping so well, and it is quite equal in my estimation to any other sort for home consumption. If allowed to hang until the center becomes soft and well ripened the fruit is delicious. Kittatinny a rampant grower, hardy, and enormously fruitful, but too soft for long shipments. Unlike the Lawton, the Kittatinny is ready for use as soon as fairly black. Wilson's Early of little account except on sandy soil. Wachusett (new thornless,) not fully tested. Fulton, a new sort promises to excel both Lawton and Kittatinny in productiveness.

Of raspberries, Philadelphia proves satisfactory, producing enormous crops annually, and of excellent fruit, the earliest of the reds, a good market berry. Mammoth Cluster is valuable, very productive, and berries of the largest size. Davison's Thornless, very early but not very satisfactory. Doolittle's Black Cap too well and favorably known to require comment. Seneca, fruit large and late, quality best. Purple Cane, very hardy and productive, good for home use, too soft for market. Yellow Cap, very productive, fruit improved by pinching in, not allowing the canes to grow over three feet high. Mrs. Wood (new Purple,) latest sort known, very productive. Warren, an accidental sort, black, hardy and productive. Began picking this with the Doolittle, 25th June, and gathered the last, July 28th. I have many other sorts of the raspberry under trial.

Of strawberries, Wilson stands at the head. It will stand more neglect, produce more fruit per acre, ship better, pay better than any other variety of strawberry I have ever tried. Green Prolific, a fair bearer but too soft for marketing. Lenning's White, very large, nearly white, fit only for home use. Jucunda, of no account—worthless. Dr. Nicaise, ditto Colfax, good crop but fruit insipid. Nicanor gives a good crop but the fruit is small, flavor fine. Boydon,s No. 30, berry large, not fully tested yet. Barne's Mammoth, promises well, productive as Wilson. Many more sorts under trial.

C. L. Janney.

Waynesville, O.

Best Soil for Peaches.

Upon the question of the best kind of soil for growing the peach D. Z. Evans of Cecil Co., Maryland, writes to the *Country Gentleman*: "I noticed an article in a late number of the Country Gentleman on the subject of planting peach trees on heavy ground, and as this is a peach growing district, I have taken it for granted that the opinions and practice of the peach growers here might not be out of place in your practical journal.

I have consulted many peach growers, and find but one opinion on the subject. All prefer a sandy loam, and none are willing to plant in heavy ground; and of all the orchards I have visited, I have seen none planted on heavy soil which were successful or profitable. I have only tried the experiment on heavy land, and it has proved a failure; while neighbors on either side, who planted on lighter soil less desirable trees, have, with much less care and attention, fine orchards, mine is a manifest mistake.

I have a few trees on moderately light soil which appear thrifty, have dark green foliage and are evidently healthy and vigorous, but they are neither reliable nor profitable; they are poor bearers, and the fruit does not color well and is of inferior flavor. After this experience, I must confess that I finally endorse the practice of the more experienced planters—that profitable crops of peaches cannot be grown, at least in this vicinity on heavy soil.

Remarkable Pear Trees.—It is said that there are two pear trees in Oxford, N. Y., set out at the time of the settlement of that place, about eighty years ago, that have borne good crops of fruit annually from the earliest recollection of the oldest inhabitants. The health, longevity, and productiveness of these trees are supposed to result from their proximity to a blacksmith shop, from which they received the scrapings for many years, consisting of cinders, old nails, bits of iron hoof parings, etc. From this, pear cultivators may learn a useful hint.

The Vineyard,

For the Western Pomologist.

Rogers No. 47.

This is not one of the forty-five numbers of his well known crosses. Mr. Rogers, of Salem, originally made hybrid seeds to the number of 150 or 175, on the wild, inedible Mammoth. Of these, 45 grew, and about half of them have been pretty well tested by myself and others. The rest have not been well tried out of New England. Mr. Rogers, later than this, proceeded to recross some of the best of his first crosses. These he numbered from 45 to 57. It is the 47 thus produced, that I now write about. It will at once be seen that the Mammoth, in the 47, has had two doses of the foreign pollen. The result is a beautiful, large, black grape, in a large, but not overgrown bunch. It is very similar to Adirondac in flavor, that is, a soft, mild flavor, with a mild aroma. In its pulp, it is almost identical with the foreign Sweetwater, which is a yellowish, white grape, and it further resembles the Chaselas or Sweetwater in the manner of its growth, that is, it has a club-like cane, short and almost stunted side canes, and an old, seraggly look to the vine.

Now, the great value of No. 47, lies in the Delaware-like character of this juicy grape; and all admirers of Delaware, Adirondac, Allen's Hybrid, and Eumelan, will at once recognize it as of this class of mild flavored, pulpless grapes, having the great gain of being a larger grape. It bears profusely. Indeed, it tends to overload itself.

Such are the facts as developed by the test vine, which Mr. Tucker had of me and is with me proving. How it will be elsewhere, what are its ultimate faults and excellencies, cannot yet be said. It is earlier than the Concord, and a great favorite of mine. It will not ripen fully, perhaps, in late sites, as most of New England, but in all grape regions, like Central New York, it promises to be a success. It is, at any rate, one of the best new grapes I have lately seen.

S. J. Parker, M. D.

Ithaca, N. Y.

The Result of the Grape Crop of 1870 at Bluffton, Mo.

The vintage is at last over, and we have found leisure time enough to sum up results and draw conclusions, which we will try to give to our readers in a condensed form.

We had 27½ acres in bearing this season, of which 17 may be called established and bearing a full crop, 10½ acres bearing their first, and thus only a partial crop. Of these, about 12 acres are located in the river bottom, 15½ on the bluffs. The latter were twice struck by hail, and the Concords also severely touched by frost in April, by which the crop was diminished at least one-third, while the bottom vineyards escaped both hail and frost. The varieties were divided about as follows:

Nortons, 11 acres, 9 in full bearing, 2 bearing first crop, 70,000 pounds.

Concord, 9 acres, 5 in full bearing, 4 bearing first crop, 50,148 pounds.

Goethe, 2 acres, bearing first crop, 5,366 pounds.

Creveling, 8 acres, bearing first crop, 420 pounds.

Delaware, 1 acre, ½ in full bearing, ½ bearing first crop, 477 pounds.

Clinton, ½ acre, in full bearing, 1,234 pounds.

Ives, ¼ acre, in full bearing, 3,516 pounds.

Taylor, ¼ acre, in full bearing, 602 pounds.

Herbemont, ¼ acre, in full bearing, 489 pounds.

Telegraph, ⅛ acre, in full bearing, 798 pounds.

Hartford, ⅛ acre, in full bearing, 1,615 pounds.

Other varieties, 2 acres, 1 in full bearing, 1 bearing first crop, 3,050 pounds.

Total, 27½ acres, 17 in full bearing, 10½ bearing first crop, 137,715 pounds; or an average of about 5,000 pounds to the acre.

This does not include the amount consumed on the place, taken to exhibition, etc., which may safely be put down at several thousand pounds more, so that the crop has been over 140,000 pounds. Of these, about 125,000 pounds were made into wine by the company, the balance being used by the tenants for wine, marketed, etc.

If we take into account the vicissitudes mentioned before, which diminished the crop on the hills to a considerable extent, the manifold ravages of birds and animals, which are unavoidable in a new settlement, and by which fully one-half of the earlier varieties were destroyed, and also that a great part of these vineyards bore for the first time, we think we have reason to be proud of, and feel thankful for such a crop In some of the vineyards the yield was really enormous. One of our tenants, Mr. George Schneider, who holds two leases in the bottom, of which about six acres were bearing, gathered over 64,000 pounds, more than 10,000 pounds to the acre. From 2 acres of Concord he gathered something like 31,000 pounds, from 3 acres of Norton's 23,600 pounds, and from ¼ acre of Ives 3,516 pounds, and part of these were only bearing their first crop.

Of the newer varieties, the Goethe and Wilder especially have surpassed our most sanguine expectations. The Goethe has even surpassed the Concord in productiveness and healthy, vigorous growth. From 350 vines, planted 6x10, in their third summer, consequently bearing their first crop, on the hills, we received 3,127 pounds of splendid fruit. And besides this heavy crop they made an enormous growth of wood, which is now ripe to the very tips, the foliage hanging at the present date (Oct. 19) on the vines green and fresh.

But we are afraid to weary our readers. Let us hear from them about their crops. In our next number we will give them a table of the specific weight of must from over thirty varieties, from which we made wine this season.—*Grape Culturist.*

The best Time for Pruning Grapes.

I have read the various articles in *Tilton's Journal of Horticulture* in regard to the pruning of grape vines. I do not propose to *theorize* upon the subject, but to give the experience of twenty years for what it is worth. At first I supposed that it was improper to trim in the spring, when they bled the worst, the Germans, whom I employed, having a prejudice against it. But sometimes some parts of the vineyard were trimmed at this supposed improper time.

The closest observation I was able to make discovered no bad result, and I have never seen that it made any difference when the vines were trimmed, from the time the leaves were ripe late in the fall to as late as the 20th of June. I seldom get all my vines trimmed before the first of June.

Since we have had the rot, I have in some vineyards tried leaving the three canes the full length until August, when if no rot appeared, I cut off the surplus wood, but if the rot set in, have left the whole vine, and got a larger yield than from vines short pruned. But where there was little or no rot, the shortest pruned vines have uniformly borne the best crops. I am clearly of the opinion that the best time to trim is whenever it is most convenient after the leaf is dead in the fall to the first of June.

I have always root pruned pretty severely, plowing deeply close up to the vine, and cutting the roots in the first hoeing in the spring in most of my vineyards; but I have also tried the reverse, and must confess I have not been able to see much if any difference in the results. There are now some seven to eight hundred acres here in bearing.

Some persons think that spring trimming is best, but do not claim that they have any facts to prove it. It is true that some parts of vineyards have been trimmed in the fall, and did not bear as well as the part trimmed in the spring, but the reverse is also sometimes true. It is quite common to have one part of a vineyard do better than another one year, and the case reversed another year. If Mr. Byington or Mr. Underhill will give us facts instead of theory, I think it would aid us more in the deduction of correct conclusions than theorizing.—*A. Kelley, Kelley's Island, O., in Tiltons Journal of Hort.*

The Adirondack Grape.

The Boston *Journal of Chemistry* says of the Adirondach:

"Among the new varieties of grapes, the Adirondack is worthy of praise. We have fruited it three consecutive seasons, and it is the earliest and sweetest of all our varieties. It has also proved to be a good bearer, hardy, and the fruit holds well on to the stem. It is a magnificent grape for wine, affording a variety resembling true Malaga. It is so exceedingly saccharine that it needs to be watched closely and handled intelligently, in manipulating for wine. The Israella, of Grant parternity, is also a good and early grape. It closely resembles the Adirondack, but is inferior in several respects. The Israella is upon the whole a failure.

For the Western Pomologist.

The Eumelan Grape.

This is one of the finest grapes yet sent out to the public, and it promises to rank very high in every place. It is, 1st—a vigorous grower. 2nd—It is large, in a large cluster. 3d—It is a mild, delicate flavored grape. At the present moment, red grapes sell best in the market. It has then the fault of being a black grape. The prejudice to black grapes has grown by the quantities of unripe Isabellas forced on the market. But Eumelan, like Diana Hamburg, will, in all places where they can be raised, do away with this prejudice. Eumelan has this advantage—it is, so far as proven, *hardy*. Diana Hamburg is so liable to mildew that it can hardly be grown anywhere not even in the best grape sites.

S. J. Parker, M. D.

Ithaca, N. Y.

The Concord in its Proper Zone.

In a prize essay on "Grape Culture in Virginia," by Wm. Jones, of Henrico county, Va., the writer says of the Concord:

"But hardy as the Concord is, it is quite a different grape grown in the proper grape climate to that grown in higher latitudes. I cut hundreds of bunches from my vines in Henrico this vintage that weighed sixteen to nineteen ounces each. They were double and triple shouldered, and in berry were a full inch in diameter, and the abundance of the juice went far to compensate for its lack of character.

It will be the universal experience that every degree of southing, as far at least as our southern boundary, brings so great an improvement to the quality of the fruit that northern grown produce will have no standing in the market, and large districts now teeming with flourishing vineyards will be compelled to return to their former staples, whenever the South shall be fully awake to its superior advantages."

The Grape Sugar Industry.

The manufacture of grape sugar has assumed large proportions. In Germany there were, in 1868, sixty establishments in operation, which produced that year 22,000,000 pounds of syrup, and 8,800,000 pounds of sugar. Since that time, other and more extensive factories have been established, and the cultivation of potatoes for the purpose also covering a large extent of territory. The potato plantations are usually in sandy districts adapted to their growth. The method pursued in nearly all of the refineries is identical. The wet starch is first put into a large wash tub, where, under constant stirring for an hour, it is entirely dissolved in water and dilute acid. From the wash tub it is run into vats where it can be boiled by steam; here it remains for sugar four or five hours, for syrup two or three hours. It is then put into the neutralizing tanks to be treated with carbonate of lime and left until the sediment, chiefly composed of gypsum, has settled; this usually requires six hours. The sweet liquid thus obtained is evaporated in vacuum pans, filtered, and left to crystallize, if sugar is to be made, or is manufactured into syrup. The process does not essentially differ from that pursued in the United States, where corn starch is chiefly employed.

The great increase in the wine growing districts of America has occasioned an enlarged demand for glucose, and the manufacture of this article appears destined to assume large proportions in the United States, where corn can be obtained in unlimited quantity.—*Journal of Applied Chemistry.*

Stable Wines unwholesome.—J. Guyot, in pointing out the unwholesome character of wines to which, for the purpose of exportation, alcohol has been added, says that all animal and vegetable products, when brought to a state of chemical purity and stability, are unfit to serve as food, and that to make a wine keep is to kill it. It is a well known fact that many small wines are only good during their first year of existence. Such a wine is active, and it is just that activity which makes it a wholesome beverage.

Burdocks.—To destroy burdock and other troublesome plants, the *Rural New Yorker* says, cut close to the ground with a sharp hoe, and apply a few drops of kerosene.

For the Western Pomologist.

Vitality of Trees.

The failure in appreciating this element in the cultivation of trees is a fruitful source of discouragement among the best agriculturists, and much more so among ignorant empyrics, who do not recognise it at all. Vegetable physiology is a science, and it is only necessary to suggest and stimulate research. In my last essay, I ventured to criticise the empyrical practices of veteran experts, and since that I notice that their plan is recommended, and perhaps will remain the most practical or easy of accomplishment, as endorsed by the agricultural literature of the day. We may pay too dear for the whistle in expending unnecessary labor on trees for sale.

Many years since, when in the Green Room, Professor Robey asked me which of two cases presented the most favorable prognosis, 1st. A man who *gradually* lost one whole lung by pleuritic effusion, or the sudden compression of one-half by the same means. The case of the former is that of a tree gradually deprived of its branches, as I have indicated in the case of the dwarf pear, and now recommend in trimming the peach, whereas the latter is the plan usually recommended for the pear, and universally adopted with reference to the peach. The shock when cut back to one bud is not sufficient (perhaps) to reduce the vital power more than one-half, but the subsequent docking of both the roots and the whole of the branches and top must expend much of its vital power, especially when the stumps of the roots measure half an inch and a corresponding stump is exposed at the other extremity. The question is not whether the plant will survive such treatment, but whether its longevity or profitable fruiting will be impaired. Does it ever, under any circumstances and subsequent nourishment, regain its normal or original vitality, or the peculiar and individual gift of a certain measure of life with which every living thing is especially endowed? In other words, can we entertain the monstrous absurdity of spontaneous generation of life even in a tree? Analogy may again indicate the answer. What is the verdict of any dozen dairymen when a heifer is allowed to bear two calves during the first three years of her life? It will not require a prophet to tell her fate as a cow when compared with another that has had but one calf in the same period. Extreme severity in pruning administers a shock nearly equivalent to excessive fruiting at an early period, and should be gradually performed, if possible, as I have indicated, at least among amateurs.

A switch stimulates, but a large limb knocks down and depresses vitality. Moreover, small injuries *suddenly* multiplied have the same influence. For instance, a small blister on the chest is only tolerably irritating and flushes the cheeks like roses, and so naturally that it is said the ladies of Queen Elizabeth used such means; but applied to the whole body, although merely skin deep, as a scald, it produces chilliness and death. So also with regard to the peach. The extensive abrasions of hail knock off the fruit, which the hail never struck, by depressing the vitality of the tree. Indeed, some object to the removal of the fruit at an early period on account of the irritation inflicted by thinning when the peach is adherent to the skin of the tree. We are now engaged in pruning off a large portion of the bearing wood and fruit spurs from both the north and south sides of all our trees, (say ten thousand of various ages,) since we have entertained this impression, and wish to husband the vital resources of the trees, so as to not only insure a crop, but a regular succession, and also the longevity of the trees, also the coloring and size of the fruit. Vertically, and toward the east and west, we allow the branches to expand unmolested, while the corresponding roots are nourished with specific plant food.

We are also having the mulch removed from the stem of each tree, and with it all of the surface soil that was banked upon it during all of the summer, for reasons which may be more appropriately embraced in another essay in the next volume of the POMOLOGIST, at the time when the mulch is renewed. Many orchards in this vicinity were completely destroyed a few years since, by the unfortunate publication of a successful experiment in the destruction of the peach worm, by baring or exposing the roots during the winter. During a moderate winter this may answer, but a severe winter killed all the trees thus treated.

My plan kills the worms, and also the curculio, and benefits the trees, also. It increases my chance for resisting the late frosts of the spring, as I will attempt to explain hereafter. A basin is formed around each tree, where a mound was collected, and the mice are not only expelled, but forbidden to return, while the curculio there embedded and sheltered are exposed on the surface soil and scattered in the exposed space between the rows, east and west, precisely over the roots of the branches that bear next year, giving them a double portion of this rich compost and surface soil to draw upon. Moreover, the eggs or larvæ of the peach wasp are left high and dry, where the mulch inocted their deposit, and now, unprotected, they must succumb under the tender mercies of the winter, where any one can see them in the spring, riding out on the inspissated sap or gum, showing clearly what they would do, "Had not the horn been plucked which grew full in thy front."

The basin referred to is of course vented on the most dependent portion, to avaid any accumulation of water around the stem of the tree.

In the spring, we intend throwing the furrow from the north and south sides of each tree, or "bar ploughing," as is said of a similar cultivation of corn, and this must be done before the leaves expand, or it will cause the fruit to drop by disturbing the relation of root and branch; and these roots, thus preserved, must be supplied with specific manure adapted to the production of wood, such as I recommended Dr. Cowgill, of Florida, recently, for the production of sugar, and upon the same principles, published in *American Farmer*, and also in the *Richmond Index*. I will also send the formula to this paper, as the compost may be made on any farm.

If we can succeed in developing the bearing wood near the stem of the tree, and avoid the opposite extreme universally encouraged by the common mode of trimming —moreover, if we can compel each limb, *alternately*, to rest and produce only fruit, spurs, while the bearing limbs are nourished with specific food, and the fruit exposed unusually to the sun both morning and evening —we can not only hear the criticisms of experienced peach growers, but wish to invite all the objections which can be urged, as the uniform and remarkable success of any *one* person should not be regarded as a safe indication for departure from old established usages. Progress is the popular order of the day, and real progress is detected more certainly and promptly in the Northwestern than any other States.

DAVID STEWART, M. D.

Port Penn, Del., Nov., 1870.

Premiums for Forest Trees.

The Massachusetts Society for promoting Agriculture has awarded to Major Ben Perley Poore, of Indian Hill Farm, near Newburyport, the premium of $1,000 which it offered in 1858 for the best plantation of forest trees, planted before 1860 and growing in 1870. The premium was offered in compliance with a statute "for the raising and preservation of oak and other forest trees best adapted to perpetuate within the State an adequate supply of ship timber."

Major Poore has not only successfully demonstrated that forest trees can be profitably grown where the land is not of great value, but he has shewn that our bleak and barren hills can be reclothed with forests, restoring the soil, reviving exhausted springs in the valleys, and ameliorating the climate. The plantation on Indian Hill, which is about twenty-five acres in extent, is well worth a visit by all interested in arboriculture, and the report by Major Poore of his labors during the past ten years will be a valuable contribution to our rural literature.

The first premium for forest trees offered on this continent was by the Massachusetts Society for promoting Agriculture, in 1797, a gold medal worth $200. It was awarded to Col. Robert Dodge, of Hamilton, who was Major Poore's grandfather on his mother's side, and this prompted the Major to compete for the premium last offered by the same Society. It is to be hoped that the example thus set by the parent Society of Massachusetts will be followed by the county organizations, and that before many years Massachusetts will be, as it was when the Puritans came here, "a well wooded country."—*Boston Journal.*

For the Western Pomologist:

Winter Protection of the Strawberry.

Little argument is necessary to show the advantage of some protection to strawberry beds during winter, especially in a Northern climate subject to great extremes of cold, and transitions to moderate or mild thaws, etc. If we could be sure of snow covering the ground, without compacting so as to smother the plants, from December to the middle or last of March, in one unbroken coating, there would be little need of any other covering for our strawberry beds. There are very few, if any varieties, worthy of culture, that the mere cold of winter injures; but what is the worst, operating the most severe on our hardiest varieties is, the constant changes from cold to warm, freezing and thawing, to which, unprotected, the plants are subjected if left uncovered; some varieties are more subject to damage than others, such as those with high prominent crown. Almost any material which will shade the ground and plants, without compacting to smother the plants, will answer for protection to strawberry plants. Straw, cornstalks, old refuse hay, or any kind of litter, are materials used; but in my experience I find that pine, or other like evergreen boughs, make the best of all protection, for they give the necessary shading of the ground and plants, catch and hold the snow while they keep it light, and do not settle down on the plants to smother and destroy their life. Hay and straw are objectionable in that they are liable to scatter seed and cause much trouble by introducing into the bed weeds, etc., while pine boughs are not thus objectionable. Leaves are very apt to smother the plants if put over them as is usually the case; cornstalks are liable to the same objection, and unless great care is used in covering they often kill the plants. I have known of instances where the plants were smothered with a light covering of leaves, and also destroyed by too many cornstalks resting on the plants, when used for covering; but I have yet to learn of the first instance of ill-effects where judiciously covered with evergreen boughs.

Winter protection should be given before the ground freezes hard, and, of course, in time to anticipate the first fall of snow.

Hartford Co., Conn. W. H. W.

A New Plum.

Ed. Western Pomologist: I send you by mail to-day a small tree of my new plum which was grafted last spring on to a wild plum stock. You will see that it has blossom buds on it, although it is not yet over 15 or 18 inches high, and every one of a few hundreds of the same sort grafted in the same way last spring are full of blossom buds, which goes to show you that the trees are young bearers, as I wrote to you they were when I sent you the scions of them last Spring.

The history of this fine plum is as follows: A gentleman went from Oregon to Kenhawa county, West Virginia, taking seeds of a yellow plum with him, which he had got off of a wild tree in Oregon. The seedlings varied in the character of their fruit, some being fine and productive and others not so good, but were generally hardy and early bearers. They were brought from there to this neighborhood by Ruel Daggs, who planted the seeds here and gave some to Michael Miller, a neighbor of mine, who then lived near Luray.

One of Miller's trees (the parent of my stock,) proved so productive, and produced such fine flavored and beautiful fruit, ripening late, after other plums are gone, and resisting the attacks of the curculio so well, that I obtained two small scions of it in the spring o 1861, and grafted them on to a bearing Green Gage. They both grew and bore the next year and every year since, but the crop was light this year as the Green Gage is dying; yet these two branches seem sound and healthy; but I think they have borne their last as they must die with the stock on which they are grafted. I think it will take its stand along with the Miner and Wild Goose, and plums of that class, and fiill a place in September and October, which neither of them can.

I sent scions of it last spring to Marshall P. Wilder, Dr. John A. Warder, Charles Downing, F. R, Elliot and many other prominent fruit growers in the Union for them to test. If it proves as early and constant a bearer of heavy crops of niee, beautiful, delicious plums, with them as it has with me then I will think I have done a public good by bringing it to notice. If it does not let it fall. *I have no trees for sale yet.*

B. P. Hanan.

Luray, Clarke Co., Mo.

Transplanting the Sugar Maple.

Mr. R. H. Clark, of Rootstown, Ohio, after thirty years experience in propogating and transplanting the sugar maple, is convinced that small trees are the best for transplanting. For the last five years he has been making sugar from maples, which thirty years ago sprung from the leaf mold of his timber land, or "sugar camp." On the question of large or small trees for transplanting Mr. C. says:

"The familiar attempt at roadside propagation of pole maples, from the large lower section of the tall forest grown tree, is no adequate test of what young, well rooted nursery trees will do. And yet, I can show some prodigous maples, transplanted in that manner by my own hand and thirty-three years ago. And then again close by, there is another row of maples transplanted by me fifteen years ago, of the size of my finger; have had some cultivation and manure, and are now from six to ten inches in diameter near the ground, and have magnificent tops. And still another row close at hand of such little slips of maples and elms transplanted by me, (taken from the fence-rows near the forest,) twenty-three years ago, are now notably magnificant maples and elms. Therefore I reason that a thrifty young tree, the size of my penholder, three or four feet high, and three or four years old, everything considered, is the best size and age for transplanting. The time of year may be autumn or spring, as suits best. Only, if done in spring it must not be till the sap stops flowing.

Do Bees Injure Fruit Blossoms?

The question whether bees in working on fruit blossoms injure the pollen, and thereby lessen the amount of fruit, has attracted some attention. A year or two since, the authorities, (select men,) of our township in Mass., placed bee keeping under certain restrictions, under the beleaf that bees were injurious to the fruit interests of the town. A writer in the *Western Rural* says;

"Instead of injuring the plants upon which bees work, they are, on the contrary, highly beneficial, by leaving pollen in the flower where it would not find its way but for the agency of the bee. Pollen is necessary for the fertilization of plants, and many of them would remain barren, were it not for the insects which work upon their flowers, foremost of which stands the honey bee. In my own experience, I have found true the remark of Aristotle—made more than two thousand years since—that "bees hurt no kinds of fruits, but hornets and wasps are very destructive to them."

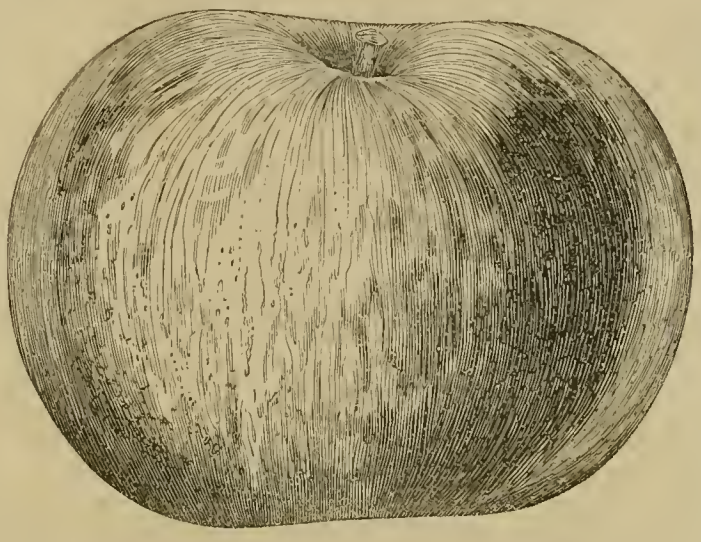
I have no doubt but that many miproved fruits found growing wild in our fields and woods, owe their origin to the honey bee. I have ever found that section of country to be the most fruitful and productive, where the greatest number of bees were kept. The same wise Creator who created the different varieties of fruit for the use of his creatures, called the honey bee into existence for the same purpose. As both were intended for man's use, would it be rational to suppose the latter was made the natural enemy of the former? I think that no sane man would answer in the affirmative."

The Jujube.—The *Mobile Register* says this is a fruit which has been more or less cultivated about Mobile for at least 40 years, but is so little known that its appearance at the fruit stalls for the first time, within the last few days, has puzzled everybody. Some thought the polished brown ovoids were a new kind of nuts; others recognized them at once as dates, a fruit they were perfectly familiar with; but nobody guessed what they were.

The Miami Raspberry.—A member of the Oneida Community, located near Utica, N. Y., says: "Among several varieties of the Blackcaps, the Miami proves to be superior fruit in size and quality. It is also a week later than the Doolittle, and perhaps equally as productive, which facts render it a very desirable variety for cultivation. The Thornless is the earliest of the Blackcaps, but being rather a poor bearer, is scarcely worth cultivating."

Fulton Apple.

We received from Mr. T. W. Willson, Iowa City, Iowa, by his daughter, Mrs. Coolidge of Leavenworth, Kansas, a very fine specimen of this handsome apple, for a name, it not being recognized there.



The following is the outline and description of the apple sent us, which is fully worthy all we say of it.

Fruit large; weight ten ounces; form round, truncated, or flattened, slightly oblique, compressed and faintly ribbed; skin rich, bright, deep yellow, with a soft buff blush; dots numerous, small, green and gray; stem short, slender; cavity wide, deep, regular, green; eye large, open; basin wide, abrupt, deep, furrowed, ribbed, and leather cracked; core small, slightly open, regular; carpels wide; seeds large, mostly imperfect, dark brown; flesh yellow, tender, rich juicy, sprightly subacid and fragrant; quality very good; use, table, kitchen, and market; season October to February.

OUTLINE.

Tree very thrifty, healthy, upright grower when young, making a handsome symetrical tree, very productive when about twelve years old, and then becomes spreading and bending to the ground with its weight of handsome yellow fruit.

The above is a good average specimen except they are generally more oblate and compressed, dots irregular, indented, and sometimes a crimson cheek, and often deeply cracked at the eye.

This fruit is worthy of cultivation not only for its size and beauty, but it fills a place in the season when we have but little ripe fruit and very few good varieties to fill its place.

The fine specimens raised by by Mr. Willson proves that the tree succeeds well in Iowa, at least under his cultivation.

It does remarkably well here. We have seen at Mr. Mackamer's and other places trees loaded to the ground with fruit, and some specimens raised by Mr. Van Winkle, of Pleasant Ridge, weighing fourteen ounces.

J. S. Kan. Ed.

For the Western Pomologist.

Letter from Oregon.

Oswego, Oregon, Nov. 3d, 1870.

Mr. Mark Miller:—It will afford me pleasure to furnish you an occasional article for your journal. I do not propose to indulge in theories to any great extent, as I suppose your readers will be more interested in facts concerning this extreme western portion of Uncle Sam's dominions; for though this State has been settled many years, there prevails among you eastern people a most lamentable degree of ignorance concerning it in regard to its geography, climate, and productions. I say lamentable, because this country deserves to be better known, and it only needs to be better known to be more appreciated. Therefore what I write will be mostly the results of my own experience and observation during a residence of eighteen years. I came here from Central Ohio; came across the plains, and arrived in Portland eighteen years ago to-day.

Having been imbued from childhood with a love of horticulture and agriculture, I have, when not actually engaged in them, been deeply interested in their progress in this State. When I arrived, fruit growing was in its infancy, and its success was a matter of conjecture, though wheat and oats had been proved to succeed well, and have never failed for a single season since. Some seeds of the apple had been planted by the early missionaries, had grown and borne fruit, and bid fair to succeed; but the improved varieties of the various fruits had not been tried, and the rise, progress, and success of their culture was a matter of great import to me, as well as to all others who had been accustomed to them in the fatherland. With what interest we watched their growth, with what pleasure tasted their first fruits! Delighted with the undoubted success of the pear and plum, and the probable success of the cherry, with painful solicitude we gradually became aware that the apple, though bearing early and abundantly of the choicest fruit, was doomed to be short lived in many localities, and that the peach was uncertain.

I have seen apples sell for 20 cents per pound, plums at 30, and cherries at one dollar. And I have seen apples sell for 12 cents per bushel, plums at 2 cents per pound, and cherries at 4 cents. Thus has the cultivation of fruits increased, and thus cheaply are they now sometimes sold.

While I am giving you the current events in Pomology, reports of the various fruits in their season, and I shall also give you some items in regard to the methods of cultivation of the various fruits as modified by experience, also, description of the country, its adaptations, needs, &c. In short, whatever will in my opinion be of interest to your readers.

But lest I weary you at the start, I will finish this article by informing you that we have just organized a State Horticultural Society. Its officers are Seth Snelling, of Milwaukie, President, and A. R. Shiply, of Oswego, Secretary. We propose to hold an exhibition next fall in conjunction with the State Agricultural Society.

A. R. Shiply.

Remarks.—Thanks for the promised favors. Hope to hear from our far off horticultural brethren in Oregon monthly. "Facts" are just what we want.

Nutritious Value of Apples.—A writer in Hearth and Home, estimates the nutritious value of a bushel of apples as equal to 6 pounds of starch, while a bushel of corn contains from 48 to 50 pounds of starch. Hence he concludes that fed alone, either cooked or raw, apples have not more than one-eighth the value of corn.

THE POMOLOGIST.

Close of the Volume.

Our readers need scarcely be told that this number of the *Pomologist* completes its first volume. And, as we draw near the close of the year, and place in your hands the last number, a sort of good-bye feeling arises in view of the acquaintance thus far formed. To us the year has been one of some anxiety, for the success of a new public journal, devoted almost exclusively to the pomological and horticultural interests of the West, was looked upon as doubtful on the start, even by those who most ardently desired the success of such an enterprise. But we are now pleased to find after one year's trial that the doubts under which the *Pomologist* made its advent, have given place to brighter hopes for its future. The paper has met with a flattering reception wherever known, and its subscription list has grown steadily from the first.

Thus encouraged we feel strengthend for the new year, and we shall put forth still more persistent efforts to make the *Westere Pomologist* the best, most reliable, and instructivo horticultural journal of the day. Our already able corps of regular correspondents will receive additional strength for the coming year by the accession of new contributors.

May we not also count upon the increased assistance of those who have already laid us under deep obligations for services rendered by way of introducing the paper and enlarging its circulation? Look over the prospectus for the new volume, study its contents and resolve to win some of those liberal premiums. And the way to do it is, with a copy of the paper in hand, see every man in your neighborhood and get his name. Send on the names accompanied with the 'indispensible,' and the *Pomologist* with its clean and smiling face shall, early in each month of 1871, visit your homes, dispensing from its ample folds new and untold truths in the art of Horticulture.

The Enlargement.

As announced in the prospectus, on the first page of the cover, the Pomologist for 1871 will number 32 broad, double column pages. This improvement gives nearly double the amount of reading matter for the coming year, and at the same time puts the paper in a much more convenient form for handling. It will be seen that the terms of subscription have been advanced, but it should be understood, not in a ratio with the enlargement of the paper. This step is necessary in order that we may be enabled to meet the additional expenses o. publication without loss. The new form and increased size will make the paper doubly valuable, and we trust the change all around will be satisfactory.

Renewal of Subscriptions.

With the close of the current volume of the *Pomologist*, we wish to remind its patrons that the renewal of their subscriptions for 1871 is now in order. The first number of the new volume will be ready for distribution by the 20th of the present month. We trust that every name now upon our subscription list will be transferred to the new books before the firs day of the new year. Let us have every old subscriber's name accompanied with hosts of new ones.

To Correspondents.—In closing the first volume of the *Pomologist*, we cannot allow the opportunity to pass without an expression of thanks to those who have so liberally contributed to its pages. To make an agricultural journal or a horticultural journal what it should be—practical and instructive to its readers—without the assistance of an able corps of writers who know whereof they speak, is out of the question. We most heartily appreciate the assistance thus far rendered in the line of correspondence, and most cordially do we invite a continuance of such favors.

And to the Press.—We feel under no less obligations for the many kind words spoken in behalf of the *Pomologist*.

Only $1 per Copy.—Two dollars sent in by an old subscriber, with one new name, will pay for the two copies for 1871, or for $6 two copies each of the *Pomologist and Rural New Yorker*.

The Pomologist for Nothing.—Recollect that for a club of even five you get the *Pomologist* for 1871 gratis, to say nothing of seeds, grape vines, etc.

Illinois S. Hort'l Society.—The annual meeting of the Illinois State Horticultural Society for 1870 will be held in the City of Galesburgh, commencing on Tuesday, the 13th of December, 9:30 a. m., and close on the following Friday. This city is easily accessible by railroads from all directions. The citizens of Galesburgh will make welcome all who attend. On most, if not all the railroads leading toward the place of meeting, members will be returned at one-fifth the usual fare. The proximity of this meeting to south-eastern Iowa should call out a large number of fruit growers from that section of our State.

Specimens of choice fruit and vegetables are solicited for the exhibition tables—especially of new varieties or choice seedlings.

Meetings of State Hort. Societies.

Iowa State Horticultural Society.—The The Iowa State Horticultural Society will hold its sixth annual meeting at Des Moines, commencing on Tuesday evening, January 10th, 1871, and continue three days.

An interesting programme will be prepared. The best horticultural talent of the State will be in attendance, and a profitable meeting is sure. The usual arraugements for reaching the meeting at reduced rates will be made with railroads.

All who have an interest in the growth of trees, shrubs, or vines, are cordially invited to meet with us in Council, Judging from past meetings I can safely say that no one will go away from this without a full conviction that the time has been profitably and pleasantly spent. Friendly papers please copy.

D. W. Adams, *Sec'y.*

Kansas State Horticultural Society.—The Kansas State Horticultural Society will hold its fourth annual meeting in the town of Manhattan, on Tuesday, Wednesday, and Thursday, the 6th, 7th, and 8th of December, 1870, commencing at 9 o'clock, a. m.

All State or local horticultural societies are most earnestly invited to send delegates, and all persons interested in the object of the meeting will be cordially welcomed. Especially is it requested that a large exhibition of fruits or anything interesting to the horticulturist, be made at this meeting. It is expected that the different railroads will grant the usual reduction of fare, or, at least issue excursion tickets (which must be called for at the place of starting for the meeting.)

The citizens of Manhattan will cheerfully extend their hospitality to all from a distance.

C. B. Lines, Prest.

G. C. Brackett, Sec.

Missouri Hort. Society.—The Missouri State Horticultural Society will hold its 12 annual meeting in Brady's Hall, in the City of st. Joseph, on Tuesday, Wednesday, Thursday and Friday, November 29, 30, and December 1 and 2, 1870. A cordial invitation is extended to Delegates of all Local Horticultural and Agricultural Associations, and to all friends of Horticulture and Pomology, to be present and participate in the discussions.

The Kentucky Strawberry.—The Kentucky Strawberry is a new seedling by J. S. Downer, of Fairview, Ky., who a few years ago originated that very popular and valuable variety, Downer's Prolific, which does admirably in some localities about here where the Wilson has not proved satisfactory. Mr. A. D. Webb, Vice-President of the Ky. State Hort'l Society, in an article published in the Farmer's Home Journal says: "I certanly regard the Kentucky as the handsomest and most attractive berry I ever saw of the light colored variety, good flavor, and very large size.

From the Iowa Ag. College Farm.

Prof. C. E. Bessy, of the Horticultural Department of the Iowa Agricultural Colleged Farm, will contribute monthly to the columns of the next vol. of the *Pomologist*, 1871. During the present year Prof. Bessy has got matters in his department pretty well shaped up. We confidently expect much of interest and value from the results of his experimental opperation, on the Farm the coming year, the benefit of which Prof. B. has kindly promised to our readers right along fresh from the mint.

Contagious Character of Fire Blight.

In a recent conversation with an experienced and successful grower of the pear, he stated that he had never failed to arrest the progress of the fire blight by prompt and thorough excision—taking care to cut low enough to be fully below all diseased streaks. On one occasion, finding that he was losing a new and valuable sort, he concluded to bud other trees from it before destroying it, selecting shoots for the buds that appeared to be unaffected. But he found they had already received the poison and conveyed it to the stocks. Every tree, without exception, which had buds inserted from this diseased tree, took the contagion and either died down to the roots or was badly affected. He always made it a practice to wash his knife thoroughly after cutting a diseased tree, before using it on other trees. The failure in excision may sometimes arise from the use of a poisoned knife on the lower and healthy portions. Caution should always be used to avoid thus inoculating healthy trees or healthy portions with the poison.—*Country Gentleman.*

Grapes.—The *Boston Cultivator* of the 19th ult. says: "Grapes of delicious quality are still abundant in market, as we learn from Hiland, Smith & Co., at 97, 99, 101 in Quincy Market, and are selling from 12 to 15c a lb. wholesale—a good place to get good fruit for the annual Thanksgiving Festival.

For the Western Pomologist.

Chips from Crabdom.

Well, Friend Phillips, you have driven the nail and clinched it hav'nt you; but still it don't hold. I re-assert that one of our most enterprizing citizens has shipped Siberian Crabs to Burlington, for the past two seasons, and received $4 00 per bushel, and what is more, the supply was not equal to the demand. So much for the "fish story."

Now, Mr. Phillips touches a tenderer spot than my pocket, when he makes the pretended quotation, "Can't raise anything but crabs at Council Bluffs?"

No such sentence occurs in my article, and no such sentiment is implied. I did mean to be understood that crabs could be grown with less care than the choicer varieties of apples. I still stand upon the same platform. As well might a person think of going to Pikes Peak, and be able to pick up a wagon load of auriferous nuggets without labor, as to think of raising apples without care and labor, and those "Old Setlers," will agree who have suffered "trials, vexations, and disappointments."

So far from being one of the "can't raise fruit" kind, I claim that there is not a man in Iowa who has stronger faith in fruit growing than I have, Mr. Adams not excepted, and if my life is spared I shall prove my faith by my works. To further this end, I am making use of Mr. Adam's short but most excellent receipt, which I believe is not patented, and I will give it here: "*Wash the trees with brains.*"

Mr. Adams brought a large supply from the old Bay State, and is yearly applying a portion of this Invigorator, Insect exterminator and fertilizing material. I have only to say that those who have not already a sufficien quantity of this indispensable requisite had better not engage in the fruit business.

"What is the fruit worth after you get it" Then you admit that it is *fruit.*

Thousands of bushels are annually consumed; we can therefore safely conclude that they are good for something. It is used for every purpose that other apples are, and when you purchase the next bottle of champaigne, it is quite probable that you will get bogus, made from Siberian Crabs.

"None so blind as those who won't see," you know, but for fear that Friend Phillips will plead real blindness, I will inform him of a few varieties that he can plant in his new orchard, as ornamental trees; if he has no use for the fruit, the trees well loaded with fruit, with the rich and varied coloring are beautiful to look at, (but hands off, they are of no earthly account.) At a rough guess I estimate that one million of Transcendent crab trees have been sold and planted within the past six years. (Merely for ornament of course.) This deservedly popular variety you may place on your list as a market sort. The Montreal Beauty, you can plant for culinary purposes. I do not know this from my own experience, not having yet been so fortunate (?) as to secure a "cook," (N. B.—No free advertising intended here,) but I have it from good authority that it is especially desirable for cooking. For the dessert, you may write down Whitney,s No. 20, which is about the size of the Red June, and of fine quality. For varieties to extend the season, try Marengo and Hyslop. So many valuable varieties are being constantly added to the number, that this short list will soon need a revision.

Now, my friends, plant plenty of the choicest of fruits, but don't forget to give a large corner to the improved varieties of Siberian Crabs.

H. C. Raymond.

Council Bluffs.

For the Western Pomologist.

A new Hydrid Siberian Apple—not Slocum's.

Mark Miller.—*Dear Sir:* Enclosed I send you three outlines of a new, probably hybrid Siberian apple, originated by myself. I am certainly inclined to think it a great acquisition to our list of very hardy fruits. The tree is eight years old, and this year bore over a barrel and a half of fruit, by which you may know it was greatly loaded, and from which you can form an idea of its great productiveness. The tree is an exact Siberian crab in appearance, very thrifty and handsome. Leaf like the Siberian without pubesence on the under side, like the Transcendent. Mix them together and you could pick neither out. Wood and twigs like the Large Red Siberian.

The three outlines given are of a medium size—small and very small specimens. You will notice, the smaller the fruit the longer the stem, which is peculiar to this variety. The largest specimens have a stem no longer than a short stemed apple. It appears (the fruit,) to be made up with all the marked peculiarities of the Siberian crab, and common apple. The color and bloom of the skin is crab, in thickness like the apple. The flesh of the fruit has the consistency of the apple, with the crispiness, juciness, and astringency of the crab. It has the aroma of the crab, the core of an apple, the seed of a crab, calyx and stem like a crab.

DESCRIPTION OF FRUIT.

Fruit very variable in size, ranging from the size of the Large Red Siberian to the Winesap, but mostly large, very regular, round, slightly conical; surface smooth; color dark, bright crimson, with bloom thickly covered with large and small light dots; basin abrupt, plated, medium in depth, closed; calyx large and closed; stem cavity regular, narrow, deep; stem slender, from 2½ inches to very short; core wide, clasping the eye; seeds numerous, angular, plump, dark brown. Flavor brisk, sub-acid, astringent, very crisp, and juicy. Uses, for stewing no apple can surpass it, for drying excellent, for dry cider or champaigne cider, it will probably have no superior. The fruit has a strong and delightful fragrance. It is one of the handsomest of fruits. It has been almost entirely free from Larvæ of the Codlin moth, in an orchard where nearly all other fruit was ruined by them. The fruit will keep with care through the winter. Its *great* value is, that I have no doubt but that it can be grown as far north as any of the Siberian apples. I propose to name it St. Paul.

D. B. Wier.

Lacon, Ill.

Remarks:—We find in the three outlines received a great variation in the size of fruit. This variation may be the result of a super-abundant crop. The three outlines measure in diameter respectively, 1⅝—2¼ and 2⅞ inches.

Drought and Grapes.

The *Gardener's Monthly* says it cannot well be too dry for grapes, and then goes on to say:

"While even corn died out on the hillsides, the grape flourished gloriously. Some we know took up our hints. Many who had but flat ground ridged it up, and set their grapes on these artificial elevations. These have had their reward. But there are many who are not yet convinced. They contend that 'one swallow does not make a summer,' and the results of one dry season proves nothing. But we rather like these people, and, possibly, though coming in at the eleventh hour, may be as worthy of a full reward as those who have been with us during the full day's work.

"This eleventh hour is now come. Another 'unprecedented' dry season—another magnificent crop of grapes. Surely here are swallows enough now to satisfy the most skeptical that surely the full summer of grape culture is come. Yet we shall for some time no doubt have, as we have hitherto heard, the most roundabout excuses for failure—the most unreasonable explanations of why 'our climate is so unsuited to grape sulture.' We do not by any means believe that thoroughly dry ground is the whole battle against the foes of grape culture; but we do most confidently assert that with this, half the victory is won."

Winter Care of Plants.—A lady correspondent of the New York *Tribune* thus writes about protecting tender plants during winter:

"It may interest some of your lady readers to know how those who cannot afford the luxury of a greenhouse can keep their tender plants all winter. My cellar is dry, cool, and dark. About the first of November I have the orange, lemon, petersporum and oleanders carried into the cellar. Those are all in large tubs, except the latter which I have placed in one when taken in, and then the roots covered up with soil. These plants are watered once a week while they are in the cellar with tepid water, and they keep in fine order."

Have an Eye on the Orchard.

Look well to the orchard, especially the young trees. Beware of rabbits and sheep above all other varmints. They will do more damage in an orchard of young trees in a few hours than can be repaired in years. Are your orchard trees fenced and secure from stock of all kinds? Unless your trees are set deep—five to seven inches lower than they stood in the nursery—a practice that we follow, and have done for years, the ground about them should receive a coating of some kind of litter. Such a dressing protects the roots from excessive freezing, or sudden transitions of freezing and thawing. Care should be taken, however, not to have such stuff come in contact with the stem of the tree, to there make a harbor for mice. It is best to defer such work until the ground has frozen to the depth of a few inches. After that, there is not much danger from mice before the weather begins to moderate in the latter part of winter.

The Wild Black Cherry.

Ed. Western Pomologist.—Will the wild black cherry answer for a stock on which to graft the Early May cherry? Or would any of the finer varieties of the cherry be any more likely to succed on the wild cherry stock, than they are on the stocks used by nurserymen? The wild black cherry is quite plenty about me, and I wish to know if the trees can be turned to any better account than to produce their natural fruit for the birds and boys. By the way, is there any difference between what are called the Early Richmand and the Early May cherries? Jasper.

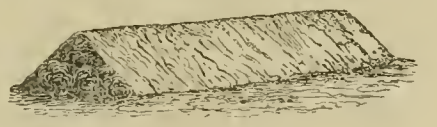
Remarks.—The stock of the wild black cherry will not answer for working upon the Early May, or any other of the improved sorts of the cherry. There is about as much difference between what are called the Early Richmond, and the Early May cherries, as there is "twixt tweedle dee and tweedle dum."

Fruit in Sitting Rooms.—Of the sanitary effects of ripe fruits in the sitting or sick room, *Good Health* says: "We should be chary of keeping ripe fruit in our sitting rooms, and especially beware of laying it about a sick chamber for any length of time. The complaint which some people make of a faint sensation in the presence of fruit, is not fanciful; they may be really affected by it, for two continental chemists have shown that from the moment of plucking, apples, cherries, currants, and other fruits are subject to incessant transformation. At first they absorb oxygen, thus robbing the surrounding air of its vital element; they then evolve carbonic acid, and this in far greater volume than the purer gas is absorbed, so that we have poison given us in the place of pure air, with compound interest, warmth accelerating it."

The Vegetable Garden.

How to Winter Cabbages.

Every one who has ever tried it, is well aware how difficult it is to keep cabbages good and sound throughout the winter in a common cellar. A dry atmosphere, a low temperature, and exclusion from light are indispensable requisites to success in the preservation of cabbages through the winter and spring months. We have seen many plans recommended and tried, but the most successful method was learned, some years ago, from a German gardener near Dubuque. The *modus operandi* is simply this:



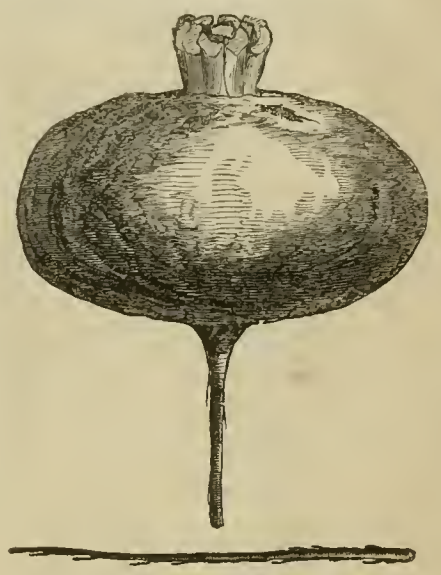
CABBAGE TRENCH.

Select a dry spot of ground in a sheltered situation. Dig one or more trenches two to three feet in width and eight to ten inches in depth—thus making trench room of sufficient capacity to hold the quantity to be stored. Pull the cabbages and set them upright in the trench as they stood in the open ground, and pack with soil plump up to the heads. Make a low covering in the formed of a letter A inverted, with anything that may be at hand in the line of boards. Put on a covering of five or six inches of fine, dry straw, well packed, and cover it with about the same depth of earth. After the covering of earth is fairly frozen, and before extreme cold weather sets in, add more straw, corn stalks, or some such material, according to the severity of the winter. Also close up the ends of the pit with straw, removing it occasionally, however, in mild weather, to give ventilation, but not so as to raise the temperature inside above the freezing point. Cabbages thus stored are accessible at all times during the winter, by removing the straw for a few moments from one end of the pit. Our German neighbor always had good, sound cabbages for the market at any time through the winter, and along the spring months into May—at paying prices, too.

Wintering Beets, Turnips, and Carrots.

These vegetables, unlikd the potatoe and cabbage, will part with their natural moisture, and wither before rotting, unless kept from the light and air. To keep them plump and fresh, and to prevent them from becoming "corky," remove the tops and pack in sandy loam, and keep in a cool cellar. In this way, if the right sorts are grown from late plantings, beets, carrots, and turnips will keep all winter in as good condition as when taken from the field at harvest time.

☞ Girdling fruit trees may stimulate fruit growth, but shortens the life of the tree.



The Egyptian Turnip Blood Beet.

The Egyptian beet, figured above, is a new sort among the turnip rooted, and of recent introduction into this country. It is pronounce by those who have been fortunate enough to obtain seed, very fine, and a valuable acquisition to the beet family. The Early Flat Bassano, and the Early Blood Turnip-rooted beets are earlier, finer fleshed, more tender and sweeter than the common long blood beets. But the Egyptian appears to have the preference over all by those who have tried it. We have the promise of some of the seed, and propose to distribute it among our patrons, as stated among our premium. We are told that its mediums size of growth is about five inches in diameter.

Keeping Pears.

Dr. J. Houghton, in Tilton's *Journal of Horticulture*, gives the following method of keeping pears:

"I think pears intended to be kept for a long period of time, say six months or more, should be carefully hand-picked, when well matured on the tree, and put immediately into the fruit room, with a temperature as nearly down to forty degrees as possible. They should be placed in shallow boxes or on shelves, in such a manuer that the air can reach them, and so they will not be bruised or crushed. The fruit room should be kept constantly at about forty degrees; the air should be kept dry and pure, but no fresh air should ever be introduced into the apartment with a view to ventilation, as such ventilation would introduce new supplies of oxygen, the destructive agent of the atmosphere.

In such a room, nearly all perishable fruits will keep for an incredibly long period of time. The most delicate pears, such as Bartlett, nearly tree ripened, will keep for four months, if not longer, while the later pears, with tougher skins, will surely keep for six months, and some of the winter pears, I have no doubt, perfectly sound for a year. In keeping grapes, native or foreign, I believe not so much success has been achieved as in keeping most other fruit, though instances of great success are reported. Singularly enough, peaches, which are generally very perishable, keep surprisingly well in a cold,

dry fruit room, and when brought from such a fruit room into a warmer atmosphere are not much affected by the change.

The great difficulty in keeping winter pears plump and sound, which we find in this climate, is, that it is almost impossible, without the aid of a cold fruit house, to carry even winter pears through the hot weather in October, when the thermometer frequently shows seventy-five degrees of heat, and no cellar or vault can be found sufficiently cool and dry to keep the fruit from passing into a state of partial decay. It requires a temperature nearly down to forty degrees to keep pears for a long period of time, and in this part af the country no cellar, rocky vault, twenty-five feet deep, or rocky well, seventy-five feet deep, has ever shown a temperature lower than fifty degrees, or thereabouts; generally the coldest lager beer vaults (rocky caverns, thirty feet deep), are constantly at fifty and fifty-five degrees.

The Flower Garden.

About Wintering House Plants.

We know that many of our lady readers cultivate house plants, and no doubt many more would, were it not for the want of time to take proper care of them, or for the want of suitable conveniences for wintering them.

It is certainly poor encouragement, after tending such plants carefully all through the summer, and thinking what a fine display they will make in the winter, to have them all cut down just as we are beginning to enjoy them. Where a person has choice plants, with facilities for cultivating and preserving them successfully through the winter, it is better to head them in well, where practicable, and put them away until spring in a cool cellar, where they will not freeze. If the cellar be very dry, they may require watering occasionally during the winter. In this way most of the common house-plant smay be kept with safety, and will start vigously when brought out in the spring.

Many who have the care of house plants in winter, water them too much, when they are least able to throw off the surplus moisture. They should have all the light and air possible, and the leaves thoroughly syringed or sprinkled every few days, water sparingly, unless the plant be growing vigorously, or is in blossom, in which case it will bear more.

Flora of New Hampshire.—Dr. Nathan Barrows, of Claremont, N. H., says that the flora of the State is characterized by the abundance of willows, duck-weeds, pond-weeds, ladies' slippers and ferns. We have 1447 flowering plants, and 410 of the lower orders, making a total of 1857 species of plants in the State. The summits of New Hampshire are said by the doctor to be islands of arctic vegetation, having no parallel this side of the Mississippi. Over 50 are found nowhere else in New England, 4 being quite common on the very tip-top of Mount Washington. All are perennials and are in no wise dwarfed; 79 per cent. of them are found on similar summits in Europe.

What Flowers Teach.

Flowers teach us the tenderness of God's character. If he had made nothing of this kind; if his works had been for bare utility any coarse and more substantial creation only, the tender side of the Divine character would have failed of the revelation it now has in nature. You cannot come across a delicate, trembling flower in the shade of a wood, so small that your heel could crush out its life with one careless step, but that you will think how gentle God must be, who made this flower in its exquisite beauty to live there, and daily cares for it in the regular course of His providence.

Following the same idea, the sleep of the flowers touches our sympathies. Many of these at night will fold their petals closely together, and like the darlings of a kind mother, repose trustfully in the care of their Creator. And during the long, dark night, they gather the dews which distil in the quiet air, and when day comes, the first beams of the morning fall on millions of glittering drops, and flash back from leaf, and bud, and petal, and grassy blade, in such brilliance that the whole waving and nodding field of blooming beauty seems dressed in gems more resplendent than any dream of oriental magnificence.—*Selected.*

Lilium Auratim.—Of this superb lily, several varieties have been sent out from Japan, and are appearing in the catalogues of the nurserymen, especially in Europe. We have had several ourselves, but find that they are not permanent, at least with us. Of this we have a notable instance in a very beautiful variety, in which about two-thirds of the golden stripe in the middle of the petals is of a deep crimson color. Last year a plant in our possession came true, but this year it produced flowers which were pure white, with golden stripes, but not a particle of any other color, the very spots being wanting.

We mention this to avoid disappointment on the part of those who may purchase some of these varieties, and to prevent any accusation of deception being brought against the nurserymen or florists who may have them to sell. Our experience with them is that in some seasons they come correct, and in other seasons vary in their characteristics.—*Hearth and Home,*

What is a Flower?

Flowers are merely leaves, so arrangad as to protect the vital organs within them, and colored so as to attract insects to scatter the fertilizing pollen, and to reflect and absorb the light and heat of the sun for ripening the seed.

We see the whole gradual process of the change of the common leaf in all the parts of a flower, most beautifully displayed in the flower of the common white pond lily. The outermost circle of petals is greenish, approaching the herbaceous texture and color of the calyx; the next circles are purer and more succulent, and the innermost ones are snowy white, entirely cellular, and begin to show rudiments of an anther at their points. Gradually the petals become smaller and narrower, while the anthers on their summits become more distinct, until at length the usual thread-like filaments, and golden dusty anthers of perfect stamens appear in the heart of the flower.—*The Gardener.*

Apple Poetry.—A thirsty wag, imitating what Josh Billings calls "poetic prose," wrote the following: "Pick apples now, and cider make, and through a barrel juice it; then get a straw, without a flaw, and through the straw reduce it.'.

Myrtle-Leaved Orange.

This is a plant seldom seen in our greenhouses, but should be in every collection of plants for winter flowering. It is easily propagated by budding at the proper season on seedling stocks, planted in the open ground. Under such conditions, success is nearly as certain as with the peach.

In two years from the bud, this orange forms nice compact plants, and flowers profusely. The small, intensely green leaves contrast so finely with its pure and fragrant flowers that each little sprig is a boquet in itself. Other varieties of orange have leaves too large, which are often of a sickly green. In the cultivation of the orange, our practice is to turn the plants out of pots into the open ground every second season. If this practice is pursued every year, the plants grow too strongly to flower well, so they are kept in pots alternately and plunged to the rims in the open border. The fruit is small, and of no value except for ornament.

Entomologist

Martins vs. Caterpillars.

A correspondent of the *Cincinnati Gazette* says:—"I had a martin box near my orchard this season, I observed the tents of these caterpillars, forming on several different apple trees, which were neglected through the hurry of farm work, but to my surprise they all had disappeared without my help. Having a wild cherry tree near my orchard, which had been much troubled with tent worms, I noticed the martins in great numbers flying about this tree. In watching their motions I soon discovered that they were devouring the tent worms. Hence I could easily infer what had become of those on my apple trees. If any one would free himself from this pest, it can be done, I think, by keeping a number of martin boxes in or near his orchard."

Cloud of Butterflies.—An Exchange paper says:—One evening near the first of this month several gentlemen at the Virginia Military Institute saw a strange flight of butterflies. The column was fifty yards wide and stretched across the horizon as far as the eye could reach. They were of the large, broad-wing kind. They seemed weary, and several lighted on the buildings, rested, and then resumed their journey.

The Cabbage Worm.—Our exchanges from the Eastern States speak of the ravages of a new worm that infests the cabbage. About Albany, N. Y., and other localties where large quantities are raised, the total destruction of many plantations is complete. The worms are so numerous that the entire head of the plant is eaten out in a few hours.

Currant Borer.—The Minnesota papers complain of the depredations of the currant bore in some localities in that State.

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DR J. STAYMAN,
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Should Trees be Pruned? No. 1.

BY THE ASSOCIATE EDITOR.

This very important question, should trees be pruned? appears to be simple and readily answered. But should we carefully consider the purpose for which they are pruned and the immediate and future effect produced thereby, it would be very difficult to give a ready and reasonable reply. We are tenacious of well established opinions sanctioned by long usage. We look upon innovation with prejudice however true and philosophical it may be. This has been the fate of almost every progressive idea, and fortunate is the person who escapes its anathema. We were brought up in the school of popular opinion and taught to prune for *form*, for *vigor*, for *wood*, for *fruit*, for *health*, and finally for to *transplant* successfully. We spent almost a life-time in its practice and enforcing its precepts. How plain and simple appeared its philosophy! Who could doubt its teaching when he had the living specimens before him?

"Oh vain man that thou art," having but one side of the question before you, how could you see the result of the opposite? Like the physician who had just completed his course of instruction, takes his lancet and pill-bag in hand anxiously looking for a case that he may display his skill, giving all the credit to his timely aid, never thinking that *nature performed the cure* in spite of his medicine. To fully show the state of the public mind upon this subject we will give an extract of a discussion that took place at Philadelphia, before the Pennsylvania Horticultural Society, Feb., 5th, 1867, after the reading of our essay on the "*Philosophy of Pruning*" in *Gardener's Monthly*, April, 1867. "Dr. Stayman's essay was listened to by a large and intelligent audience, at the Hall of the Horticultural Society, and at its close, a very animated discussion ensued, which we regret that our space will not allow our giving in full. Every speaker however united in disagreeing with Dr. Stayman, that pruning at transplanting was an injury. It was the opinion of the whole of them in a large number of cases, pruning at transplanting was the only way to save the lives of trees that had been injured in digging. The instances cited by Dr. Stayman, of trees dying which were pruned, and of those living when unpruned, seemed to stagger the speakers, but it was so opposed to their experience that they argued there must have been some difference beside the pruning, overlooked by Dr. Stayman; and others argued, perhaps the Kansas district has some peculiar action. The proposition of Dr. S. that pruning weakens vitality in some degrees, and often to an injurious extent, also interested the speakers, a majority of whom sustained this view of the essayist, although to many of them it was presented for the first time in this shape. The essay was considered one of the most valuable contributed to the Society, and though so many disagreed with some of the views expressed, the thanks of the meeting were unanimously voted to the author for his very suggestive essay."

Here we have the most able and intelligent Horticultural Society oppose our views of *not pruning at transplanting*, although in other instances they admit "pruning weakens vitality in some degree." No

wonder that the public are unwilling to try it after receiving the condemnation of such an intelligent body of horticulturists, although so easily demonstrated by a trial.

Of all the reasons given for pruning, there are none so unphilosophical, as those given at transplanting; that is to "balance the top to the roots," which in plain language means you have *cut off the roots, now cut off the tops* in like proportion. Now what should you think of such advice given in law, physic, or morals, to say we have made a case, now produce an other to cure it. But admitting for argument sake the truth of your position, suppose you *did not* cut off the roots, then according to your own argument you have no tops to balance,—pray then why do you cut them off? The ready answer is, "you know we have another vital and important rule we must not forget, that is, when we transplant a tree the roots cannot support as much top in its new position as it could before being removed, therefore we must cut off and thin out the top so there will be a less number of buds to support, then those left will make a more vigorous growth, and the tree will not become exhausted, and dry up by excessive evaporation as it would otherwise do." All this theory appears on paper well enough but who has demonstrated one particle of it true in practice? It may however be a fact that *each bud left* will make more growth than each bud would have done if none had been removed, but what does that prove in sustaining your theory? No more than fifty buds making eight inches growth are only equal to two-hundred buds making two inches growth. Then what have you gained by giving the growth to a few buds instead of the whole number. If the aggregate growth is no less, then why should it become exhausted and dry up by evaporation any sooner. Why do not evergreens, which evaporate more, require the same kind of treatment if your premises are correct? The fact is, your premises are false, and although you may reason upon them correctly and logically, yet your deductions will be incorrect. That is the reason why one part will not agree with the other, and you must have different rules and exceptions to them.

KANSAS STATE HORTICULTURAL SOCIETY

Fourth Annual Meeting at Manhattan, Dec. 6th, 7th and 8th, 1870.

By the Associate Editor.

The Society met at 9 o'clock A. M., at the Baptist Church. Dr. W. H. Howsley in the chair, he being elected by the Board and on account of the resignation of President W. Tanner on account of ill health. Prayer by Rev. Storrs, of Quindora.

The Vice President, C. B. Lines, then read his opening address, which was listened to by a large and intelligent audience which was an able production and was well received, which we have not room to give at present.

The Constitution was so amended as to have a semi-annual meeting in June, at such place as the Board may think best.

AFTERNOON SESSION.

The afternoon session met at 2 P. M., Dr. J. Stayman in the chair. Dr. W. H. Howsley then read an essay on the Pear and its culture, which we are sorry we cannot give in full. He said it was perhaps the most popular of all the fruits now in cultivation. Everybody loves it. In flavor it is unsurpassed. The tree is tall, long lived and hardy. From the indication of its roots, it is best adapted to a deep shaley, gravelly, dry clay soil. Rich bottom soil is unfavorable to it, they grow too rapidly, and do not mature the wood. Sudden changes in the Fall then injure the wood, causing the blight: which is proved by California having no sudden changes in the fall and no blight. Downing, and all able authors agree with him that it is caused by frozen sap rupturing the vessels.—It was not produced by insects or fungus, although they may be sometimes present as scavengers feeding on decay. One of the most remote causes of blight is *excessive pruning* and an *unusual rain fall*, but the immediate cause is always traceable to the previous season's growth of immature wood, and *sudden changes in the fall*, freezing and rupturing the sap vessels. He also said there was another blight caused bythe heat of summer heating the sap, and is sun-scald blight, that takes place in July and August, on the south side of the trunks of tall pruned trees. The prevention of the disease is in planting slow-growing kinds, or on poor soil, and avoiding everything which makes excessive late wood-growth, and then look to "Him who tempers the wind." The amount of fruit a tree should bear should be no more than the tree can perfect and mature well. Gather the fruit a few days before ripe, and place it in a fruit room to ripen. Never shake off the fruit, hand pick it. Assort it always well for market—if mixed, it will not bring half price.

None of the *Ad Interim* Committee reported except Dr. J. Stayman, of Leavenworth, which report was listened to with great interest, and called loudly for at its conclusion for publication. It was handed over, and published in the Manhattan *Standard*. This report conflicted with the theory of Dr. Howsley, on blight, and a very animated discussion ensued, which continued the entire afternoon. Dr. Stayman advocating that excessive rain *always* preceded blight, which gorged the sap vessels and produced *vegetable apoplexy;* that in a country with but little rain, (as California) blight is unknown, and previous to 1860, unknown in Kansas. But in the last five years we have had an annual increase of

rain fall of more than eleven inches, and with it followed the blight. When this increase of rain has not taken place in Kansas there has been no blight, and a soil or location thoroughly drained and dry was indispensible to the successful culture of the Pear. At the

EVENING SESSION,

Capt. James Christian read a very interesting essay on *Floriculture*, which was too good and witty for us to attempt to describe or give even the substance of, which we may hereafter procure for publication.

Following it, Dr. J. Stayman was called on by the Chair, at the request of a number of persons, to give an essay on the Philosophy of Pruning, which was read before a large and intelligent audience, causing a very animated discussion the whole of the evening. The substance of the essay commences in the POMOLOGIST, January, under the head, "*Should Trees be Pruned*," and will be continued through its pages until completed—which we hope will be carefully read and digested.

WEDNESDAY MORNING.

There were several verbal reports made. One by Prof. Kelsey, stating that the fruit trees had went into winter quarters in good condition. That all the trees in full bloom in April last were killed by the frost. In some situations they had done well were not so much advanced; and in late-blooming varieties, as the Jennett, done well. But the fruit in general was very much injured, and half of the strawberries and peaches were destroyed. Mr. Soule, of Lawrence, made a similar verbal report about to the same effect.

Dr. Howsley also made a report from one of our most extensive fruit merchants of Leavenworth, stating that this season there was shipped to *Kansas* over $200,000 worth of green fruit; showing the great demand and want of supply this season, and if it had been cheap much more would have been consumed; and that there was no fruit shipped here that surpassed the fruit of 1869 in size, variety, quality and keeping; giving great encouragement to the fruit-grower here; showing the rapid increase in the consumption of fruit with the increase of immigration, which will continue to increase for many years to come.

The revision of the fruit list then commenced with the Strawberry. Wilson's was the only one recommended for general cultivation, and Downer Prolific for trial.

Raspberry—The Large Miami Black Cap or Mammoth Cluster, and Doolittle, were recommended for general cultivation.

The Blackberry list embraced Kittatinny only, for general cultivation.

Currants for general cultivation: Red Dutch, White Grape, and White Dutch.

Gooseberries: Houghton Seedling and Cluster.

AFTERNOON SESSION.

The regular order of business was the election of officers, which resulted in the following:

President—Dr. W. M. Howsley.

Vice President—Prof. B. F. Mudge.

Secretary—G. C. Brackett.

Treasurer—S. T. Kelsey.

The next in order was an essay by Rev. Mr. Gale, read by Rev. R. D. Parker, Mr. Gale being too unwell to attend the meeting.

We cannot attempt to do justice to this essay, as it was one of the best we ever heard upon that subject, and hope to be able to give it in full in our journal hereafter.

After the reading of it, Mr. R. S. Elliott, of the Kansas Pacific R. R., was called upon and gave us a short dissertation on the importance of forest culture in Kansas, of what he was doing and going to do in that respect in the West on the railroad lands, and induce others to plant trees. He expected the settlers along the railroad lands would engage in planting, and co-operate with him, for the general good. The Chestnut, Cottonwood, Maple and Elm were highly spoken of, and the European Larch.

THURSDAY MORNING.

The revision of the apple list being in order, the following varieties were recommended—those with two stars for general cultivation; those with one star highly recommended, and those with a dash, on trial:

Red June **	Kansas Keeper *
Early Harvest *	Fall Wine —
Cooper's E. White *	Fameuse *
Sweet June *	Rome Beauty *
Red Astrachan *	Bailey Sweet *
Maiden Blush **	Hays' Wine *
McAffee's Nonesuch **	Ortley *
Mo. Pippin *	Gilpin *
Sweet Romanite *	Jonathan *
W. W. Pearmain *	Kirby Red *
Wine Sap **	Wagner *
Ben Davis *	Lowell **
Willowtwig **	A. S. Pearmain **

Smokehouse *

PEARS.

Standards.	*Dwarf.*
Bartlett **	Rosticzer —
Seckel **	Tyson *
Flemish Beauty *	Doyenne Boussock **
Doyenne d'Ete —	Swan's Orange —
White Doyenne *	Beurre Diel —
Belle Lucrative *	Duchesse d'Angoulcme *
Howell —	Howell *
Lawrence —	Easter Beurre —
Sheldon —	Lawrence *

LAST EVENING SESSION.

The resignation of our former President, Wm. Tanner, of Leavenworth, on account of ill health, was read and accepted. When a unanimous vote of thanks was passed for the earnest and faithful manner he discharged his duty while President of the Society since its first organization. Who, we

may further say, was chiefly instrumental in calling forth its first meeting and organization.

The balance of the evening was devoted to "*A talk on Evergreens*, by Robert Douglass, *Waukegan, Illinois.* He said that it was generally believed that evergreens did not transplant well, but that was a great mistake, they transplant as well as deciduous trees, if done at the proper time. Early in the spring is the best time, as soon as the frost is out of the ground, before the trees start. Some wait until the buds are about bursting, but that is too late, they will not make as much growth and mature their terminal buds so well, because they stop growing soon in the season, about July, therefore if you plant soon the tree is ready to start growing at the proper time, and it will make better growth and become better established.

The principal thing in transplanting is to put them firm in the ground, you cannot pack the soil too tight, particularly if the soil is light. I should think in soil like Kansas it may be tramped down tight, so as not to bruise the roots; I have seen more trees lost by loose planting than from almost any other cause. The roots must not be let get dry; grout or puddle the roots as soon as received, and then plant immediately, before they dry; plant some deeper than when in the nursery, elevate the center of the hole a little to set the tree on, then spread the roots out and fill in compactly among all the fine roots, and particularly under the tree, so it will not sink. The whole substance of successful evergreen transplanting may be embraced in a few words, plant *early in the spring*, never allow the roots to *become dry*, and pack the *ground tight*, so they cannot shake about or move by the winds. He also gave the method of raising evergreens by seed; but that, he said was a very delicate operation without some practical experience. In his first experience he lost every one; but by degrees he improved, and now he does not find much difficulty. The young plants must be shaded by lath, cloth, or brush, the first year at least. He sows in the spring until May, in beds four feet wide, broadcast, and rakes in and shades.

He also advised nurserymen and others who plant largely, to bed out the plants from three to six inches, to set them with a dibble six inches apart in the row, and the rows from twelve to eighteen inches apart, shade them the first season, and work with a hoe. The earth should be drawn up to the plants at the last hoeing of the first season to prevent heaving out in winter. In two years from planting they will be nice stocky trees, averaging about one foot in height, and may then be planted in nursery rows three or four feet apart, or in shelter belts and hedges. Three years old, six to nine inches may be planted immediately into three or four feet rows.

For hedges and screens not intended to grow higher than eight feet, plant American Arbor Vitæ.

For hedges and screens plant Norway Spruce.

For wind-breaks, sheltering-orchards, &c., plant Scotch Pine, or Norway Spruce.

For timber, plant European Larch, Scotch Pine, White Pine and Norway Spruce.

For ornamental planting, use Norway Spruce more freely than any other Evergreen.

He dwelt particularly on the European or Tyrolese Larch, (*Larix Europea,*) of De Candolle, as undoubtedly the most valuable timber tree for extensive planting, combining the durability of the Red Cedar with rapidity of growth, extreme hardiness, freedom from disease and adaptability to almost every variety of soil.

It has proved more profitable in Great Britain than any other timber, and is now planted more extensively than all others combined. A. J. Downing said: "For picturesque beauty the Larch is almost unrivaled. The extremely rapid growth of this tree when planted on thin, barren and dry soils, is another great merit. The Larch is the great timber tree of Europe; its wood is remarkably heavy, strong and durable, exceeding in all these qualities the best English Oak. To these it is said to add the peculiarity of being almost uninflammable, and resisting the influence of heat for a long time. The Larch is unquestionably the most enduring timber that we have. To prove the value of the Larch as a timber tree, several experiments have been made in the river Thames. Posts of equal thickness and strength, some of Larch and others of Oak, were driven down facing the river wall, where they were alternately covered with water by effect of the tide, and then left dry by its fall. This species of alternation is the most trying of all circumstances for the endurance of timber, and accordingly the Oaken posts decayed and were twice renewed, while those of the Larch remained altogether unchanged."

So far as the Larch has been tried in this country it has been healthy and grown more rapidly than in Europe. We are unable to do full justice to Mr. Douglass' remarks, they were the most interesting and valuable upon that subject ever contributed to our Society, and at the conclusion a vote of thanks was given by the Society to Mr. Douglas, for his able instructions on Evergreens.

Then a vote of thanks was given by the Society to the citizens of Manhattan, for the kindness and hospitality shown the members of our Society, during our stay amongst them.

The meeting then adjourned, to meet at Lawrence on the third Tuesday of December, 1871, when a free hall and the hospitality of the citizens would be tendered to the Society.

The meeting was well attended by able horticul-

turists and others, and was one of the most animated and interesting the Society ever held, and much praise is due the Professor of the State Agricultural College, and the citizens of Manhattan, and the Press.

Report of the Ad Interim Committee.

Mr. President: Having been appointed at our last meeting one of the *Ad Interim* Committee we beg leave to submit the following report:

The past year has been remarkable for its extremes of cold and heat also moisture and dryness.

The winter was mild and dry, yet it was marked with sudden changes injurious to some of the fruit. On the 16th of January, and from the 18th to the 20th of February, the temperature suddenly sunk respectively 51 and 58 degrees, which destroyed nearly all the budded Peaches, as 60 degrees is the maximum of a sudden change the peach will endure,

The apple and all other fruits came through the winter safely as they will endure in their dormant state a much greater change without injury, but in a partially developed state will endure no more, as the following instance will show:

April opened warm and continued mild until the 12th, when a strong wind set in from the southwest and increased to a gale on the 13th, and prevailed up to the 14th, which raised the temperature to 87 degrees and prematurely developed the fruit-buds, when the wind suddenly changed to the northwest which reduced the temperature to 18 degrees before it ceased.

This sudden change of 69 degrees destroyed nearly all of our apples, pears, plums and cherries, more than half the strawberries, Concord grapes and other small fruit, also the balance of the peaches left, except those just about ready to open their buds, and the few apples found in the same condition as the Hooker. We were not only deprived of a crop of fruit but soon after it came another disaster which appeared at one time to threaten the destruction of all our pear trees and also many of the apple trees.

This disease called the *blight* made its appearance among us about 5 years ago; and has apparently been on the increase.

From observations made here we find it has shown its worst stage between the 10th of May and the 10th of June. To ascertain if possible the cause of its being more particularly confined to that period, we resorted to our meteorological observations in hope of finding something peculiar in the atmospheric influences confined to that period, which we believe the following table will show:

In	1866	it rained	during	above	period	8.39 in.
"	1867	"	"	"	"	7.15 "
"	1868	"	"	"	"	6.86 "
"	1869	"	"	"	"	7.57 "
"	1870	"	"	"	"	7.01 "

The average amount of rain for 5 years being 7.39 inches which had fallen within a period of four days at a mean temperature of 64.5 degrees.

Now if we take the average of May for the same period of time, we find but 5.62 inches, and if we take the mean temperature of June we find but 5.22 inches of rain. Here we find in the result about two inches more rain-fall during the period of the blight than we do either immediately before or after it.

Whether this excessive rainfall had anything to do with the blight it is not our purpose now to discuss, but there is one thing, however, very peculiar about it. Previous to 1865 there was nothing known of the blight in Kansas, neither is there any record of as much rain during the same period of time.

From observations made at Ft. Leavenworth for 20 years previous to 1860 the average amount of rain was for the spring 7.32, summer 13.03, fall 7.57, winter 3.42; total 31.34 inches. From observations made by us the last 5 years we find the following: spring 10.95, summer 16.29, fall 8.54, winter 6.82, total 42.60 inches. Here we find an annual increase of rain of 11.26 inches in the last 5 years distributed as follows:

Spring 3.63, summer 3.26, fall .97, winter 3.40 inches.

This increase of rain is not confined to Leavenworth County but in common to the whole State.

At Ft. Riley previous to 1860 the mean amount of rain was: spring 5.62 summer 10.68, fall 5.87, winter 2.72, total 24.90 inches. The last 5 years at Manhattan it was: spring 6.03, summer 13.96, fall 6.82, winter 2.54, total 30.35 inches.

Here we have an annual increase of rain in Riley county of 5.45 inches for the last five years, corresponding very nearly to what it was 10 years ago in Leavenworth county when blight was unknown.

If excessive moisture has anything to do with the blight it could not have existed in Riley county previous to the last five years, and should not exist even now.

Although the past season was, in some respects very disastrous, yet it gave us much valuable information which we could not have procured otherwise, as regards the soil and location, also the varieties to plant,

We find that locations which retard the early spring-unfolding of the first buds are in general the safest and best for orchards. Soils which are dry and well drained and not too rich, are the most exempt from blight.

Varieties which make a slow, mature growth are not so subject to the disease.

All kinds of stimulation to hasten wood growth increases the liability to blight, and whatever has a tendency to retard it has the opposite effect. The past season was very favorable to the ripening of

the early grapes, although from the 19th of May to the 16th of June it was very wet, there being 8.08 inches of rain, which in a few instances produced the rot, but a timely change checked its further progress. But the latter part of the season was very favorable, for from the seeding of the Concord grape, June the 22d, until its maturity, August the 6th, there was but 3.36 inches of rain, being 3.48 less than any record here since 1860, and for the same period of 45 days, the mean temperature was 80.5 degrees, being 4 degrees above the average, and from 135 regular observations made, there were but six that the sky was entirely over-cast with clouds.

As we have before shown that a high temperature with little rain and a clear sky during the maturing season, was favorable to the formation of saccharine matter, and would produce grapes of the best quality, so this season has been remarkable in that respect. Never before have we seen the Concord grape ripen so soon, and of such excellent quality.

But while the season was favorable to ripening of the early grapes, it was unfavorable to the maturity of the late grapes, as the latter part of August and all of September were extremely wet and cloudy, there being 13.81 inches of rain from the 8th of August to the end of September. Although the mean temperature for that whole period was 70 degrees, being above the average, yet it was not sufficient, under the above conditions of humidity and cloudiness, to evenly and thoroughly ripen the Catawba grape, which is an additional proof of what we have before remarked, that a high temperature and diminished rain-fall are necessary for the perfection of the grape, which the following illustrations will fully demonstrate:

In 1869 it required one hundred and thirty-three days, at a mean temperature of 70.5 degrees, from foliation to the maturity of the Concord grape, being equal to 9.355 degrees of total heat, with a rain-fall of 31.60 inches; while in 1870 it required but 111 days at a mean temperature of 73.6 degrees, being equal to 8.188 degrees of heat with a rain-fall of but 13.60 inches, being 21 days less in time, 1.167 degrees less in heat, with 18 inches less rain, and the quality and perfection of the grape was in like proportion.

Although the past season has proved disastrous to the fruit growers of Kansas, we should not be discouraged, as this is the first case of failure since the settlement of the country.

We have a climate mild and genial, a soil rich and diversified, a landscape undulating and unsurpassed, with every aspect of hill and dale, gentle slopes, high elevations with natural benches and terraces. No other country can lay claims to more than what nature has done for us and if any is entitled to the appellation of Eden, it is Kansas.

Contemplate a country just born into existence, (scarcely fifteen years since unknown except by its forts and fortifications for protecting the immigrant from the wild and savage Indian,) now blooming with its productions as the rose;—whose fruit stands unrivalled in size, beauty and excellence!

Not simply the honor of being awarded the *Gold Medal*, but the fact of her fruit being made the *standard of size, beauty and excellence*, is the greai glory of Kansas

This society may justly be proud of what it has achieved. It is not four years since the first nucleus commenced, whose germ embraced but two individuals within our own atmosphere. Now it is honored by the highest compliments ever bestawed upen any Horticultural Society, and is looked to with more interest than any other.

That we may continue the good work so nobly commenced, is our sincere desire.

J. Stayman, *Committee.*

Leavenworth, December, 1870.

For the Western Pomologist.

Horticulture and Home Culture.

By C. Andrews, Marengo, Ill.

In this practical and money-getting age, we are in danger of being cursed with a class of horticulturists who regard the calling only in the narrow and mercenary view of a mere money-making pursuit.

In a country like ours, where there are no privileged classes, and scarcely any class too poor to grow fruit to some extent, horticulture should not be regarded as a profession for the few, but an art to be learned and practiced by all. It is high time that this mere mercenary spirit should be shamed out of the men who hold high positions in hortieultural influence. While the accumulation of material wealth is without question, the basis of all improvement, yet there are other and higher objects which should be held sacred in connection with every calling, and which for decency's sake, if nothing more, should not be ignored by those who assume to lead public sentiment.

We have no desire to bring personalities into the diseussion of horticultural topics. The vindication of Science, however, sometimes necessitates personal allusions. Great men have been known to indulge even in offensive personalities—a domain we shall most studiously avoid entering. But when men who have the eye and ear of the public, make statements in opposition to the welfare of large sections and classes, it is but just that they and their sophistries should be shown up.

Dr. Hull, of Alton, and "Rural," of the Chicago *Tribune*, both monoplize departments in widely read journals; neither of whom admit any reply or discussion on points connected with their peculiar

hobbies. They have in various ways declared that the men who advocate the introduction of hardy ("iron-clad") fruits into the Northwest, do so because they have "axes to grind." Perhaps so. But let us see who have the largest axes and which are liable to cut deepest into the pockets of the people of the Northwest.

This same "Rural," while at Dixon last winter, accepted and ate with apparent gusto, Winter Siberian apples, as did also President Samuel Edwards and a score of other gentlemen, who all attested to their agreeable, edible qualities. Mr. Dunlap's (Rural's) only objection then was, (as politely given to the writer,) that although "they might be quite necessary at the North—but—we—(at Champaign) in our section—we are not interested (?) because we can grow larger apples." [We particularly admire the breadth and benevolence of Rural's horticultural vision]. And yet in a lengthy article soon afterwards, he declared that the "improved crabs were of little or no value"—that he had "never yet seen an edible crab (!)—that nurserymen who grow large stocks of crab apple trees did so "not always for fraud," but on account of a supposed demand in the Northwest," but which would never be realized, as "wherever Rivers and Railroads permeate, the better fruits of other sections will follow to compete with these crabs." Is it not easy to see the animus of men who write thus for the organs of railroad and sectional monopolies?

Dr. Hull also declared at Dixon that the Miner Plum, and in effect the whole tribe of Chickasaw and Wild Plums, were "not worth a single moment's notice." He has said substantially the same of all the Morello Cherries and other hardy northern fruits, substituting therefor the application of his pet system of root-pruning to varieties that will never be valuable in that region,—a practice as puerile as it will prove pernicious in our dry, deep-freezing soils and depleting winds.

In all these positions there is an ill-concealed admission that the "iron-clads" must be fought because they are feared. And why are they feared? Is it because these conscientious guardians of Northwestern (?) interests wish to prevent the effeminate Northmen from being humbugged by the nurserymen who grow crab apples to supply "a supposed demand?" (Very complimentary, indeed, to both nurserymen and Northerners.) But why not leave that to the natural course of trade and production? Rivers and Railroads have permeated to the region of Minnesota; but the people have not been cured of their desire to grow fruit for home consumption. Our best fruits "grown further south," and for which, Dr. Hull says, the Northwest is "the natural market," are constantly being shipped to St. Paul. Yet they have failed to "compete" in price, in that market, with that worthless "crab," the Transcendent, which can be grown there in large quantities. Does this look like ending the "supposed demand?" On the contrary, is it not evident that these narrow-minded men fear that if the improved Siberians (which cover the whole season of good winter-keeping fruits) prove as successful as the Transcendent has done in its season, that together and with other hardy fruits, they will supply the wants of the Northwest to such an extent that the grand monopolies of Railroads, Rivers, and fruit sections South, will cease to afford them paying employment in puffing them? And the products of their own orchards, got at such great cost by "bugging," may perhaps want a market.

It is a disagreeable duty to attribute selfish motives to men in high positions, and were we not warned by history and every day experience that "public functionaries" need watching, we might incline to spare these strictures. As a nurseryman, engaged in growing improved Siberian apples for all sections, (for we expect to see their merits yet recognized, even in "Rural,s" district) we are impelled to make these disclosures in our own defence. We admit no "fraud" in originating and growing "crab apples for the North," but, on the contrary, consider the encouragement and approval of such men as Wilder and Warder, of Elliott, Saunders and Thomas, as a direct and sufficient verdict in favor of the "great national importance of improving the Siberian species," and a most complete and crushing veto of the charges preferred by the *bogus* pomologists whom we have had occasion thus to expose. These charges are made against all Northern and Western nurserymen, who are thus arraigned for either "fraud," or, ignorance of the demands of their respective markets. We defer to their judgment as to the facts we have stated and the manner we have handled the subject. And especially do we ask the fruit-growers and sturdy settlers of the Northwestern States to form their own opinion of the sequences we have drawn as to who intends them the most good, those who offer you new fruits for trial according to the recognized rules which govern honorable pomologists, or those who advise you to depend upon Rivers, Railroads and distant States for a supply of one of the greatest necessities of your civilization and comfort.

We repeat it, that while fruit-growing for profit may be a praiseworthy pursuit, there are other and higher objects to be gained by the practice of horticulture, viz: The adornment of home and the elevation of the masses by that æsthetic culture which the planting and care of fruit trees alone can give to a rural population. The Northwest has made great sacrifices in the attempt to grow fruit, but no sacrifice can be so disastrous as that of settling down into the apathy advised by the official horticulturists of Illinois. And we say again with emphasis, that the men who would by false reasoning disparage the capacities of a region for development in this direction are only worthy to be classed as horticultural demagogues.

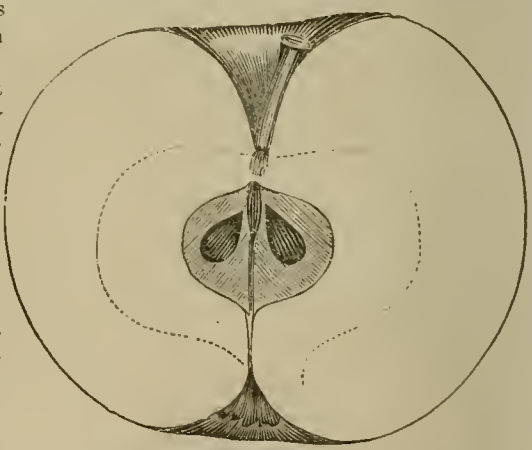
For the WESTERN POMOLOGIST.

Tetofski.

BY D. W. ADAMS, WAUKON, IOWA.

I follow Warder in spelling this name, believing it to be correct and fully sustained by the analogies of the language of the country originating the fruit. A careful examination of a large map of Russia shows that a, i and o, are about the only vowels used as terminal letters, while e, u and y, rarely or ne er occur in such situation. Webster's Unabridged Dictionary of Biographical Names gives us Czelakowski, Wisznewski, Zhukovski, Ladowski, Jablonski, Gorski, Sobieski, and a host of others ending in "ski," and only a single instance of "sky" terminating a name. Such being the case it seems proper that we should in our orthography of the word conform to the usages of the language of which it is a part.

This fruit was introduced from Russia some years since, but not till the last four or five years has it attained much notoriety. Like Duchess of Oldenburg, Grimes' Golden, Ben Davis, and some other now popular sorts, its valuable qualities were not prematurely pushed into notice, but only with time has intrinsic merit built up a reputation. Time was, when quality of fruit alone was sufficient to cause a variety to be highly extolled and recommended for cultivation. In this more practical day, however, the hardiness, vigor, early and constant productiveness and health of the tree have quite as much weight in determining the value of a variety. In the far Northwest, especially, hardiness or ability to endure extreme cold, is the first and indispensible requisite. Very few varieties possess this in sufficient degree to be wholly successful north of 43° north latitude. Among this few, the Duchess of Oldenburg and Tetofski stand pre-eminent, enduring the severest winters even up to 45° like a frolic. Another point in a fruit tree that is recently receiving much attention, especially in newly-settled districts, is early fruitfulness. In this particular Tetofski is excelled by none, often commencing to bear in nursery at four years from graft. And when once it commences it produces most profuse crops every year, loading itself to such an extent that the tree usually becomes dwarfed from overbearing and seldom attains much size. There are trees in this county fifteen to twenty years old not more than four or five inches in diameter of trunk; yet these trees are literally loaded with beautiful fruit year after year, and have been so ever since they were the size of a hoe handle. With those who plant the apple tree for timber the Tetofski will be a failure; for fruit, it is decidedly a success. The value of this sort South, is still a matter for experiment. North, it is no longer a question. It combines in an eminent degree symmetry, hardiness, early and abundant fruitfulness of tree, with beauty, fair size, fair quality, and extreme earliness of fruit. Such a combination of good points is seldom found in one variety. It has this serious drawback to extensive planting in commercial orchards, viz: The skin is very beautiful and delicate, showing plainly the least bruise; and further, it is very perishable, lasting but a few days after maturity. To give you an idea of the appearance of the tree, I send you a photograph of one on my grounds, set in the Spring of 1865, now in full bearing. For description I cannot do better than copy Warder:



TETOFSKI—OUTLINE.

"Tree vigorous, hardy, productive, upright. Leaves broad, pale, light green. Fruit small to medium, round, flattened, somewhat conic, angular. Surface smooth, yellow striped; splashed carmine. White bloom. Basin shallow, folded. Eye large, closed. Cavity wide, wavyor deep; acute. Stem

short, yellow. Core large, closed, clasping. Seeds numerous, plump, brown Flesh yellowish-white, breaking, fine-grained, juicy. Flavor, acid. Quality good. Use market, kitchen; Season, June, July — before Early Harvest."

TETOFSKI—TREE.

REMARKS.—The foregoing illustrations of the Tetofski, are taken from specimens of fruit received early in July last, from Mr. J. Gould, of Beaver Dam, Wis.

BEES AND RASPBERRIES. — A correspondent of the *Practical Farmer* says: "I have a quarter of an acre in raspberries adjoining my apiary of two hundred swarms of Italian bees, and I am very sure the bees were a great advantage to the berries."

The Miner and Wild Goose Plums.

BY H. A. TERRY, CRESCENT CITY, IOWA.

ED. POMOLOGIST: I was much pleased with the remarks of your correspondent, Alfred Giddings, in the December number on the Miner Plum, though I think he is greatly mistaken in supposing that that variety and the Wild Goose are identical, from the fact that when the trees are in full leaf these varieties differ in appearance nearly as much as a plum and a peach. I feel quite sure that my trees are true to name, as I have the Miner alike, from two different sources, (one from Mr. Giddings himself,) and the Wild Goose from Mr. W. S. Rainey, of Columbia, Tenn., who was among the first to propagate it and send it out. If friend Giddings saw wood of Wild Goose at Des Moines, and it was identical with that of the Miner, either that wood was not true to name, or I have not the true Wild Goose. I send you by this mail, wood of both varieties, and you will see at once that any person with a sharp eye could readily perceive a difference. I will say that the difference is not so great in the ripened wood as it is in the tree when in full foliage. I have the rows of Miner and Wild Goose near together, and strangers visiting my place are sometimes at a loss to make out whether the Wild Goose is in the Plum or Peach family. In appearance and habit of growth, it somewhat resembles the apricot. I have not yet fruited the Wild Goose, of course I can say nothing in regard to the fruit, but if it is as good every way as the Miner, I shall feel satisfied. I am told that the fruit ripens several weeks earlier than the Miner. I have a variety of plum found growing wild near Denver City, Col., which somewhat resembles the Wild Goose, though it has a habit of sprouting from the root worse than a Morello cherry. The fruit is red, of fair size and excellent quality—fine for cooking. The tree is perfectly hardy. It is, without doubt, of the Chickasaw family.

For the Western Pomologist.

Fruits in Central Texas.

BY S. B. BUCKLEY, AUSTIN, TEXAS.

ED. POMOLOGIST: The POMOLOGIST receives a hearty welcome from me, even in Texas, which is somewhat out of the range of your magazine of useful information on fruit culture. Although your journal is more especially devoted to the fruit interests of the Northwest, and West, still it has much matter of great use to us in the Southwest, where fruit growing is yet in its infancy. Texas will soon become a great fruit-growing country, for which it has advantages superior to those of any other State or Territory, with the exception, perhaps, of California.

Our mild climate permits us to grow many semi-tropical fruits, in addition to those usually cultivated at the North. I speak now more particularly of Central and Southern Texas, especially of the neighborhood of my residence, Austin, for Texas extends through many degrees of latitude and longitude—embracing 274,356 square miles—enough for several States as large as Iowa—consequently we have in Texas a great variety of soil and climate.

I have growing on my place apples, pears, peaches, plums, cherries, quinces, apricots, nectarines, figs, grapes, raspberries, blackberries, strawberries, mulberries, oranges, bananas, and Japan plums. The three last need a slight protection during the winter. Peaches do remarkably well here, affording ripe, delicious fruit from about June 10th to the middle of November. When our railroads are completed we shall send thousands of bushels of this fine fruit, during the months of June and July, to the markets of Iowa, Missouri, Minnesota and Illinois, to make glad the hearts of all lovers of good fruit who have sufficient money to afford to buy it.

Wishing the POMOLOGIST much success, I remain yours truly,

THAT "OLD EARLY BLUE." Levi Bartlett, of Warner, N. H., states that a farmer of that town has annually grown the "old early blue" potato for over fifty years, and it still holds its own. We recollect that same "old early Blue," well. Forty years ago, or more, we used to think it par excellence in the potato line.

For the Western Pomologist.

Color of Fruit and Flower.

By J. Stauffer, Lancaster, Pa.

Who, that has stood in admiration of the brilliant and varied hues of flower or fruit, has not wondered whence these colors? The theory of colors has engaged some of the ablest minds, and various ingenious contrivances resorted to, in the investigation. Newton sought by means of the Solar spectrum, by direct experiments to ascertain the composition of colors, but came to no satisfactory results.

M. Chebreuil, contrived a chromatic scale in nine gamuts of twenty tones each, so that he actually has classified and arranged 14,424 distinct tints, that may be easily recognized, all of course derived from the primitive colors, formerly affirmed to be Red Yellow and Blue.

Newton showed that every color in nature is produced by the mixture in various proportions of the different kind of lights into which white light is divided by refraction; he terms the seven colors of the prism as—primary. Dr. Young advanced the theory that the three elements of color are determined as much by the constitution of the sense of sight as by any thing external to us. He conceived that three different sensations may be excited by light, but that the proportion in which each of the three is excited depends on the nature of the light; and conjectures that these three primary sensations correspond to red, yellow and blue.

Sir David Brewster, regards the actual colors of the spectrum as arising from the intermixture of three primary kinds of light—red, yellow and blue.

The experiments of Helmholtz, with his contrivance of prisms and lenses, astonished him to find that white results from a mixture of blue and yellow—which usually results in a green, but the matter was clearly demonstrated.

Prof. Clark Maxwell contrived a tube fitted with lenses and adjusting slits, and demonstrated that a mixture of the blue, red and green rays produced white; blue and red, purple; red and green, yellow; but if the red predominates, orange; also yellow and blue produced white; but affirms that yellow has no pretentions to be considered a primary color—but red, green and blue, that red and green make yellow.

My object is more particularly to refer to the influence of light on vegetation, fruit, and flowers.

These absolutely require white light. It is found that each species of colored light has chemical rays throughout the whole extent of the solar spectrum. And it is farther believed that each species of colored light possesses special action. The influence of the various colors of the spectrum upon the development of vegetation; for instance, no colored light permits vegetables to go through all the phases of their evolutions; none of them have flowered or fructified. Violet colored light is positively injurious to plants; as before said, they absolutely require white light.

I shall not discuss the nature of light, its refraction, polarization &c. or when solar light refracted by a prism or globule of water, is separated like in the rainbow, that brilliant colored arch which makes its apearance when rain is falling in the region of the sky opposite the sun, and the sun is shining upon the rain drops at the same time.

It is enough to glance at this property of light as seen in nature, and familiar to all; my object is to glance at various facts; for instance, much depends upon the manner in which the rays strike the eye or the condition of the surface that bend the rays of reflected light, resolve them into various colors, as in the mother of pearl. If we take wax or stearine blacked with lampblack or graphite, and pour it on a sheet of mother of pearl, it will take a fine impression of the invisible stiæ of the outer laminæ, so that when held in a certain position to the eye, the same bright iridescence as in pearl itself will be seen, only that the under laminæ of the pearl will transpose the tints or colors in a changable manner which the wax impression cannot.—But if you view the pearl under the light of a lamp fed with Alcohol containing common salt, no colors will appear; indeed the yellow rays of the sodium-light, will extinguish the brilliant red color of red-lead, as every school-boy knows.

So also with regard to the discovery of Dr. Hoffman, of the wonderful properties in *Coal Tar*. As benzole is one of the hydro-carbons from which, by acids and scraps of Iron the wonderful aniline, or coloring base is prepared. The Mauve, is produced by heating aniline, with bichromate of potash and sulphuric acid. Magenta is obtained by heating aniline with arsenic acid. Thus from a refuse resulting in the destructive distillation of coal, in gas-making, chemistry has evoked a series of the most brilliant dyes ever seen, and this coal-tar yields no less than fifty distinct chemical substances. Whatever a matter yields, must necessarily be one of its component parts.

Having just read Mr. Winchell's sketches of creation, my mind reverted to the scenery of the coal period, the luxuriance of vegetation, the abundance of carbonic acid gas, to be absorbed and converted into the carbonic base of the future stone coal, and as light and heat are mysteriously blended, although heat may be latent and yet exist locked up until the particles of matter are set in motion by combustion, giving out the absorbed heat and light, why may not the "solar spectrum" be absorbed also and the rainbow hues impringed upon the coal? we even see these iridescent colors frequently on coal. I have seen them as a scum on the water near our gas factory years ago, and thought how desirable it would

be to know how to obtain these colors, before I heard of aniline. So likewise in my boyhood I longed for a mode to preserve the pictures, as seen in a camera obscura. This, Daguarre, Talbot and others, have since accomplished in Photography.

Thus we witness an onward march in Chemistry and Philosophy, and if the rising tide of information will occasionally submerge one of the old land marks, sacredly believed in because taught by a Newton, it can not be helped; the word is onward, yea and upward.

J. Smith Esq., of Perth Academy, comes to the conclusion that varieties of colors are produced by pulsations of light and shadow in different proportions for each shade of color, and that light is simple and not compound, that the phenomena of the prismatic refraction and polarization of light must be explained upon hypotheses, altogether different from those of Sir Isaac Newton. Mr Smith's views are well sustained by his experiments.

The various theories of the cause of color are yet somewhat conflicting. I do not feel competent to mend the matter, but rather to school myself in this branch of actino chemistry.

We see that the rays of light act in conjunction with the carbonic acid of plants. The colors which favor the decomposition of carbonic acid most, is yellow, and red next; violet and blue affect it but little. With green light—whether from the color contained in vegetables or from solution or colored glass, the action is peculiar; under this influence, the carbonic acid is "*nil*" as one writer says, a new quantity of this gas is on the contrary, produced by the plant.

A blue coloring matter has been obtained from the petals of violets, of roses, peonies, and experimented with—this cyanine or blue matter on which the vegetable juices have an acid re-action (turning it red,) while the juice of the blue flowers are natural. In the presence of alkalies the rose color becomes first blue and then green.

The yellow coloring matter has no relation to cyanine. There are two different substances one insoluble in water (called xanthine) the other very soluble (called xantheine). The former analogous to resin, and along with cyanine, it produces in flowers an orange color, a scarlet and a red. The other combines easily with oxides; alkalies, change it to brown of a very rich color and strength: acids destroy the brown. The colored juices of Plants are chemically compounded, and dependent upon principles not understood. We know that copper filings disolved in a vial of volatile alkali will show a blue color when the vial is unstopped to admit the air, but when the cork is put in the blue color will disappear.

When a sharp frost occurs early in the fall, while the pulps of the leaves are still full and plump, the red color comes out brilliantly in some particular kinds of trees and shrubs, because the acid of the air acts upon the blue substance. Certain trees, whose chemical constituents in their sap, or more alkaline properties, neutralize and modify these colors, from pale straw through yellow, orange, rose, scarlet, to a deep purple, and clothe our autumnal forests in the varigated hues of the flower garden. The chemistry of nature, oh! how deep and marvelous, and past finding out!

A chemist is a faint image of his creator, he may combine certain articles from his knowledge and experience,—foretell what the resultant compound will be, when the laws of chemic action lodged in the materials have performed their office.

But the wisdom of God is displayed in the perfection and wonderful results of organization and life, from a monad to the planetary universe too infinitely vast for finite creatures to comprehend.

For the Western Pomologist.

Management of the Tuberose.

By A. Veitch, New Haven, Conn.

We presume the cultivation of the Tuberose is generally well understood, and yet it would seem from the way in which the bulbs are sometimes handled at lifting time they are not dealt with in such a way as the nature and requirements of their case demands. That method, by which the greatest quantity of flowering bulbs can be obtained year after year, may safely be reckoned the best, and what this is, may be a question of importance to those whose success may not have been equal to their wishes.

In the management of this plant, as well as every other, the largest amount of success depends upon the cultivator's ability to furnish, or at least supplement the means when these are wanting, by which they are carried foward to perfection. And as it is a native of a milder climate than this—one in which the growth of summer is not liable to be suddenly arrested by early frosts, but where, for aught we know, it may be strictly evergreen. One draw-back to their successful cultivation in northern latitudes, is the shortness of the season they have to do their work in. This obstacle not unfrequently stands in the way of the bulbs being sufficiently matured to flower the following year. Impressed with the correctness of this view I have for sometime thought much harm can be done by cutting the leaves clean off by the necks of the bulbs, immediately after lifting, and by following an opposite course, have been rewarded with a greater per centage of flowering bulbs than when trimming clean and neat as for the market, any time in Autumn or early Winter. Instead, therefore, of divesting them of any leaves but what may have been hurt by frost, or in any way disturbing the clusters of bulbs, we would recom-

mend storing in a dry warm place, just as they are taken out of the ground. The reason for this may seem plain enough, and is based upon the fact that when they are checked in their growth before reaching maturity, less violence is done, and the time somewhat lengthened in which to form embryo flower buds as a pledge that they will flower in the succeeding year. That this process is dependent upon the leaves and the stored up food in the bases of those leaves, which indeed constitute a great part of the bulbs, is just as certain as they perform this office in the case of a grape vine and an apple tree. When, therefore, these necessary appendages are abruptly taken off when in an active state, or mutilated so as to hinder needful work in the vegetable economy, by the shadow on the face of "*flora's dial*" it is resting time whether their labors are finished or no.

Of course it is a matter of convenience for those who grow this flower extensively, to dress the bulbs clean at lifting time, but this does not affect the question in its physiological aspect. The laws of growth and developement are too inflexible for that, and therefore it is well when the requirements of nature and convenience run in parallel grooves, the latter neither opposing nor infringing upon the former.

MOURNING BRIDE,—*Scabiosa.*

For The Western Pomologist.

Beautify Home.

Progress of Horticulture, Distribution of Seeds, well known, time honored plants, improvement of sorts.

By F. R. Elliott, Cleveland, Ohio.

Friend Miller: I notice that while you mainly devote the Pomologist to its legitimate purpose, you are also mindful that to many it is a dry practical subject, and that the home of man cannot be made beautiful and attractive by fruits alone, and so you keep up the Flower Garden, to which just now, I will add a word: as, while I write there lays before me a new catalogue of seeds by James Vick of Rochester, N. Y., and by it I am reminded of the enjoyment given to myself and children by means of annual flowering plants the past season; and also of the greatly increased beauty that many of our old, time-known sorts have obtained by means of high cultivation and care in seed saving etc. The old well known plant commonly called Mourning Bride—*Scabiosa*—and found in almost every flower garden—an annual to be sure, but often living over winter—has been so improved that flowers of it from seed as now sent out by Vick and other seedmen, would hardly be recognized as the same plant, by reason of their superior beauty.

I send you herewith by this same mail a cut of two blooms, copied from Vick's catalogue, with which to portray to the readers of the Pomologist. The flower on the right is of the dwarf growing variety, very double and perfect. To some of us who remember back long years, the great change and improvement in flowers, as well as the more common introduction of them to all homes, is both astonishing and gratifying. In place of the single Hollyhocks we now have them so double and perfect that they have almost taken the place of dahlias. The old garden-pink, and even the delicate single Chinese which we used once to admire, have been so improved that their beauty now rivals in the open garden, if in fact they do not surpass the best carnations grown in the green house—but enough for the time, and yet while thinking back, let us note the progress that marks us in the way of disseminating seeds &c.

Once, seeds had to go by some private carrier's hands, and long distances required much time, but

now it is only to enclose the order and money for the seeds, even though the seedsman be a thousand or more miles away; mail it and within a few days we have our package without as much trouble or time taken as would be to go and select the seeds personally, were the dealer next door to our homes. Or again—if we want no seeds, but desire a practical, instructive book of how to grow them, these seedmen, (and Vick is perhaps not the least among them,) have got up complete works which they send out at less than cost of paper and printing, or for the nominal sum of ten cents, which can be sent them, also by mail.

For the Western Pomologist.

Growing the Tomato.

By Prof. C. E. Bessey, Iowa Farmers' College.

This vegetable is now so highly valued by nearly all, and moreover of such easy culture, that I am tempted to give to the public through the Pomologist my method of raising it, well aware that I have nothing new for the old gardeners, but hoping to give a hint or two to those who are just making a beginning in vegetable raising. I will begin with

THE HOT BED.

In the early part of April a hot bed was made of fresh horse manure, on which a frame and sashes were put, after the ordinary style of building hot beds. Into the frame dirt was put to the depth of about six inches. At first the temperature, as shown by the thermometer, was too high, but in a day or two it had fallen to from seventy to eighty degrees Fahrenheit. The seeds were then planted in shallow drills, and covered not more than a quarter of an inch deep. Every variety as planted was carefully labeled, so as to guard against all possibility of mistake. The bed was kept quite moist by watering once or twice a day with an ordinary watering-pot. In a few days the young plants made their appearance in beautiful straight lines, running from side to side like rows in a miniature corn field. Now began the careful work—for not only had the cold to be kept out, but too great a degree of heat had to be guarded against as well. We kept the temperature as high at night as possible—which seldom exceeded fifty or fifty-five degrees—while in clear days, with a good sun, it was allowed to rise to eighty, or even more. As a rule, it is not best to allow as high a degree of heat on cloudy days as on clear ones.

Every evening the plants were watered, care being taken not to water so freely as to induce decaying. As the days became warmer more care was necessary, both as to watering and to keeping the heat. The plants were allowed to grow in this way until about five or six inches in height, when they received their

FIRST TRANSPLANTING.

By this I mean that we took up each plant from the hot-bed and set it in the ground in a sheltered place where the winds could not break off their tender leaves, and where they could be covered at night whenever there was danger of a frost. In this condition they were watered as carefully as while in the hot-bed; and it is hardly necessary to add, that they grew rapidly, and acquired a much greater degree of strength than they could have done in the hot-bed. About two or three weeks afterwards they received their

SECOND TRANSPLANTING.

This time they were put out into the open ground where they were to remain during the season. In doing this, each plant was carefully taken up with a transplanting trowel, as much earth being taken up with each plant as possible. In setting, a hole was first made somewhat deeper and larger than required for the roots of the plant. The plant was then set in place and the hole about two-thirds filled with earth. A pint or so of water was then poured around the roots and allowed to soak away before the remaining earth was filled in. This water poured around the roots *after* some of the earth had been filled in, carried the fine particles of earth down around the little rootlets, and gave them a chance to immediately begin supplying the plant with its necessary food and moisture; while the last portion of dry earth with which the holes were filled prevented the ground from baking around the stem of the plant.

The subsequent care was of the simplest kind. They were cultivated with an ordinary five-tooth Deere cultivator several times, and hoed once or twice. When the plants began to be of good size—say from twelve to twenty inches in height—the earth was hilled up around them; and then nothing more was done excepting occasionally pulling a weed which made its appearance. We did no pinching at all, and did not stick a single stake to induce fruitfulness or aid in ripening; and still the fruit set *very* well, and ripened evenly and rapidly.

Pear Culture.—Mr. P. T. Quinn, of Newark, N. J., thinks that the Duchesse d'Angouleme dwarf pear is the most profitable for cultivation in the vicinity of New York. He says:

"I have made a careful estimate, and now feel quite confident that I will have 1,200 bushels of marketable Duchesse d'Angouleme, and I have good reason to suppose that this is a larger number of bushels of this variety than have ever been produced from one orchard in a single year in this State. The Duchesse are now selling for $5 per bushel, and I think will advance in price later in the season."

For the Western Pomologist.

Random Thoughts. Hale's Early and Other Peaches

By F. R. Elliott, Cleveland, Ohio.

Friend Miller: Upon the receipt of each number of the Western Pomologist, I threaten to write a few words, for each number brings out some new thought or association of ideas, to which I feel like adding; but my time has been so fully occupied with completing absolute demands that I have had to forego my own wishes and wait a more convenient season.

Just now I am in receipt of your closing number for 1870, and the little paragraph on the Hale's Early Peach, reminds me that M. B. Bateham Esq., at the meeting of the Ohio State Horticulturai Society a short time since, stated that with him trees growing on poor, thin land, did not rot their fruit, while trees only a short distance away, but on land that gave to the tree vigorous growth, the fruit decayed so fast that it was difficult to get it to market ere it was spoiled. I have a number of trees of this variety on poor, clay soil, and the fruit has decayed persistently for the past three years. Nor have I, in visiting hundreds of trees in varied soils and locations, as yet met an instance of entire freedom from decay. I am pretty much of the opinion that the variety is like Iona grape, adapted only to certain locations.

In answer to a question of T. D. Hick's, about the hardihood of the peach, I would suggest to him the *Abricotee*—known in some nurserymen's catalogues as the *Orange*, and in others as *Yellow Admirable*. I have not grown it for several years, because it is quality is not quite the best, but years since when I did grow it, I had peaches from the trees every year.

In your remarks to "Jasper," I must say I differ with you, and believe you will find the cherry generally sold in the western markets to be the old Flemish and quite distinct from the true Early Richmond.

For the Western Pomologist.

Oregon Horticultural Notes—No. 2.

By A. R. Shipley, Oswego, O. T., Nov. 28.

Mr. Mark Miller: Have been planting grape vines and cuttings to-day. Weather warm and delightful. Ground in fine order for working. Grape vines still hold their foliage in one of our vineyards. Have seen no ice yet; can you say so much in Iowa,—250 miles south of us? Our weather prophets have been predicting a very hard winter; I don't believe they know much about it. We have had just enough rain to put the ground in order for the plow, and now all over this magnificent valley the plow is speeding merrily. The autumn business of the nurserymen is at its height, and tree planting is brisk. Late in the fall is the proper time to plant trees and vines in Oregon. The roots heal over and commence to grow a little during the winter, and when the warm weather of spring comes they are all ready to start into vigorous growth. In making up the record of the season, I will commence with the Strawberry.

This delicious berry was very abundant and fine, commencing to ripen the last of May, and continuing a long time. During the early part of the season they brought fair prices, say from one dollar down to eight cents per pound; but the raspberry and cherry coming in before the strawberries were all gone, many of the latter were sold at rates which did not pay cost of production. The wild strawberry in many varieties grows all over this valley. In many places they are large and fine flavored, while in other places they grow small *and right on the ground.* On our place they are plentiful and very fine. The cultivated strawberries mostly grown here are Longworth, Agriculturist, Peabody, Triomphe De Gand and Wilson. The newer varieties are being introduced. I shall have seventeen kinds in bearing next season and will endeavor to report their success. The hill method of culture is the only one that is successful here, and is universally adopted. The distance varies according to the fancy or judgment of the cultivator. My own method is to plow and harrow the ground thoroughly, then furrow it out in rows three and one-half feet apart and set the plants eighteen or twenty inches apart in the row, cultivate well and keep the runners clipped. Treated in this way a bed will last six or eight years. It needs no winter protection. Before the strawberries are all gone we begin to regale ourselves with that other luscious fruit, the Raspberry.

The Raspberry succeeds admirably in Oregon, bearing abundantly and needing no protection in winter. The crop brought this season eight to ten cents per pound. We grow mostly the Fastolf, Franconia, Doolittle, and the native Black Cap, which bears a large and sweet berry not so highly flavored as the Doolittle. Will test many new kinds next season.

With the raspberry comes that peerless fruit, the Cherry, which grows here in the utmost perfection; all kinds do equally well. The crop never fails entirely, and generally we have abundant crops of fruit that is absolutely unapproachable in size and quality. The trees, like all other fruit trees in Oregon, commence to bear very young and continue to bear enormous crops year after year. We have all the varieties of any note known in the Eastern States, besides many Oregon seedlings. The varieties most in favor are Kentish, May Duke, Knight's Early Black, Black Eagle, Black Tartarian,

and what we call Royal Ann. This last, which is probably the Napoleon Bigarreau, is the most popular cherry on this coast, and brings the highest price of all the old sorts. It is of immense size, very beautiful and delicious, and bears shipment better than any other cherry, with probably one exception. That exception is a cherry of the largest size, glossy black, very delicious, and the firmest fleshed cherry I ever saw. Its time of ripening is two weeks later than Royal Ann. It brought twenty-five cents per pound. The tree is very handsome, a rapid grower, very prolific, and appears to be perfectly healthy. It is a seedling raised by Mr. Seth Luelling, of Milwaukee, one of our oldest and most reliable nurserymen, and the President of the Oregon State Horticultural Society. This cherry has been named by said Society, the "Luelling," in honor of its originator; he has other fine seedlings. Mr. G. W. Walling, of Oswego, has also raised some magnificent seedlings, but I am not at present able to give you a description of them. The cherry crop this season brought from five to twenty-five cents per pound; the average was about eight cents. For stocks we use the Mazzard, Mahaleb, Seedlings, and the native wild cherry (Prunus Cerasus.) The latter makes an excellent stock, the grafts uniting well and growing rapidly. It has one objection, it suckers badly. The Mazzard does tolerably well. The Mahaleb is preferred by those who have used it most; it dwarfs to some extent and never suckers. I leave the Plum to my next.

For the Western Pomologist.

Insects Inimical to the Fruit Grower.

By W. H. W., Hartford Co., Conn.

That the fruit grower of to-day, has a much greater number and variety of insect and other enemies to contend with than in former days, is an acknowledged fact; and that they are constantly increasing, is the general out-cry of cultivators. Why this, and from whence do they come? are questions often asked, and as worthy of free discussion by all interested.

In a new settled territory, and fruit growing is in its infancy, and plantations are small and far apart or isolated, but few insect enemies are known for many years, unless the trees &c., are brought from some locality where they became infested, and the germs were brought with them. Usually in new countries, fruits native to the section, are mostly made to answer the turn, or they are started from seeds; these have, usually, few observed enemies; but in the course of progress these fruits become unsatisfactory, or a different class are desired; settlements become more dense, and the local supply is insufficient, or from some other cause it becomes desirable to import fruits from abroad; with these trees, vines, &c., come concealed enemies, in the shape of eggs, larvæ, &c., which are not discovered till they have obtained a strong foot-hold; in this way they become naturalized adventurers. The increased planting and concentration of fruit orchards naturally tends to draw together native insects, which perhaps have previously subsisted on other descriptions of food. The fruit orchard furnishing them more congenial food, and in abundance, favors their rapid maturity, development and multiplication; in this way they become more observable, as they interfere with our interests, and being more concentrated, their destructiveness is also more observable and felt. Fruits uncongenial to the climate and soil, or those deteriorated in health, etc., from forcing or unnatural propagation, furnish a convenient and congenial nidus for propagation, and sending out colonies; for it is well known that unhealthy plants, or trees, are more attractive, apparently, if not in reality, than vigorous and healthy ones.

A large proportion of our insect foes are foreigners, adventurers from the source of importation of our various fruits, etc., and have become naturalized residents. These foes are constantly being introduced with our foreign importations of trees, &c., or come in vessels, and are brought on shore in some form, perhaps only a few eggs, or a single pair of the perfect insects, larvæ, &c.; these find a convenient resting place, are unobserved, perhaps unknown; soon they spread, in some out-of-the-way corner, and by degrees, spread from community to community, till they occupy a wide-spread territory; all owing, perhaps, to a little negligence of the cultivator, who might have destroyed them when first discovered, by a little forethought and trouble. Every destructive insect has its counter enemy, known or unknown! Sometimes these canibals spread with the insect they prey upon, and hold them in check; but some of our adventurers come without their natural foes, and when they get a foothold they increase and spread rapidly; these can only be held in subjection by great vigilance and much labor.

At the present time it has come to be, in all fruit growing sections where long cultivated, that every variety of fruit trees, vines, &c., has its insect enemies; and some of them many, often so many as to destroy crops of a season, over considerable tracts. What shall be done to rid us of these destructive pests, so that we can obtain good crops and free ourselves of these enemies? comes up to us from all quarters where good fruit is known. If we find a place free of these enemies and begin fruit culture with exultant expectations, a few seasons suffices to dispel these expectations and blast our hopes; for, has not with our increased and concentrated plantations invited and concentrated a horde of foes, we little dreamed as possible in so short a time?

It was my intent to mention some of the foes of some of our common fruits; but I find that my space will not admit at this time of any further remarks.

Three Desirable Crab Apples—Tanner's, Oblong and Striped Fruited.

By the Associate Editor.

Fruit rather large; form oblong tapering irregular towards the eye; skin bright crimson in the sun, lighter in the shade, with a white bloom; stem very long, slender; cavity narrow, deep; eye small, closed, projecting; basin very shalow and pucekred; eore very large, oblong; earpels narrow, long; seeds short, wide, plump, dark-brown; flesh yellow, tolerable juicy, mild pleasant acid, astringent. Use: preserves, jelly and cider. Season: August and September. Tree strong grower, and very productive, and shows in fruit like a rich plumb.

OBLONG FRUITED CRAB.

STRIPED FRUITED CRAB.

Fruit large for a crab; form round, flattened and ribbed in five divisions; skin light, clear, waxen, lemon yellow, blushed and striped with fine lively crimson, dots light yellow, irregular, over the crimson; stem very long, slender; cavity narrow, deep, russeted; eye very small, closed; basin wide, shallow, furrowed and ribbed; core large, closed; carpels very small; seed very small, short, oval, plump, black; flesh yellow, very juicy, astringent, some bitter, pleasant sharp acid. Use: preserves and cider. Season: August and September. Tree vigorous, healthy, symmetrical, thorny, and productive.

TANNERS' CRAB.

TANNER'S CRAB.

Fruit rather large, oblong conic, truncated or flattened at the ends, slightly oblique; skin bright, clear, rich yellow, splashed and striped with several shades of scarlet; stem long, slender; cavity narrow, deep, regular; eye small, closed; basin wide, rather deep, irregular, furrowed; core medium; carpels very small; seeds small, dark, plump; flesh yellow, very juicy, rich mild pleasant acid, good. Use: cider, cooking preserves, jelly, and extra for vinegar. Season: August and September. Tree erect, handsome, productive; the best crab we have seen.

As regards the origin of these crab apples, the Tanner Crab grew here on Mr. William Tanner's place, from the root of an apple graft. The seedling he bought. It now stands in his orchard, and is decidedly the best crab of the whole lot for eating, and is very passable, rich and pleasant.

The *Oblong Fruited Crab*, and the *Striped Fruited Crab* were imported from France, we believe, by Ellwanger & Barry, some years ago. They are the largest of the ornamental class of Siberian crabs, and are beautiful growers, making hadsome, *ornamental* fruit trees for a yard or park, and shonld be aronnd every dwelling. In fact, all the Siberian crabs are of that class exeept the small Red, which is neither ornamental in tree or fruit, being too thorny, and fruit too small and imperfeet.

For preserving and cider there is no apple equal to them, making cider of the heaviest body and best keeping quality. While for preserving they are rieh, spicy and acid, are small in size so easily preserved whole, being not only very palatable, but showy.

They are also adapted to the most extreme latitudes, where other fruit does not succeed so well, and for that purpose are valuable, and are very early bearers and exeedingly prodnctive—therefore should be planted for our first fruit.

STRIPED FRUITED CRAB.

As the crab apple is just now exeitng much attention, we should be well posted, and procure the best.

For the Western Pomologist.

The Miner and Wild Goose Plums.

By D. B. Weir, Lacon, Ill.

Mr. Alfred Giddings' article on the *Miner*, or properly *Townsend* plum, is, I fear, calculated to lead many astray. In the first instance, by saying that the Miner "is as good to raise from the seed as from sprouts," and in the second, by considering the Miner and Wild Goose the same. I have no doubt but that Mr. Giddings was perfectly honest and candid in what he said, and believes it. But nevertheless I am certain he is mistaken. Mr. D. Wilmot Scott, of Galena, Ill., in a letter to me dated Sept. 24th, 1870, says: "The Townsend (Miner) *does not* come true from the seed. Farmers here, supposing it a natural fruit, and would come true, and spurious varieties is the result, not one of which I have seen is as good as the original. It sports into an infinite number of varieties. Many of these farmers have been selling sprouts from their trees at fabulous prices, and many nurserymen are agoing to condemn the fruit from receiving the fruit of these spurious sorts." And Mr. Scott's testimony was made good by numerous persons at the last meeting of the Northern Illinois Horticultural Society, who had grown and seen grown many trees from the pits, and all agreed with Mr. Scott that it positively does not re-produce itself from seed. Mr. Scott in a subsequent letter says: "I know of several *free-stone* seedlings of Townsend (Miner) earlier and good fruit. Within my personal knowledge I know that the seedlings vary greatly. That hundreds and thousands of these spurious trees have been strown broadcast over the country, will be a sad blow to this, I think, the most valuable of plums, and is greatly to be regretted."

Now as to the Miner and Wild-goose being the same; with Mr. Giddings I thought they were until very lately. I had bought trees purporting to be genuine Wild-goose, time and again; they all appeared to be exactly the same as Miner. (I have not fruited any of them). But last spring I procured from an undoubted source the genuine Wild-goose plum. A glance told that if this was correct —and there is no doubt about it whatever—all my former purchases were spurious. There is almost as much difference in the looks of the two varieties as there is between a tree of Yellow Bellefleur and one of Red Astrachan. In a letter to me of recent date, my friend G. S. Downer, of Kentucky, in speaking of the Wild-goose, says:

"This plum, in no instance that has come to my knowledge, has re-produced itself from seed, and the country is almost full of spurious Wild-goose plums. I obtained my first cuttings from the *original tree*, and have kept it pure until the present time. Many nurserymen, and others, are selling what they call Wild-goose plum trees on their own roots. They are mistaken, I think. All such are only off-shoots (suckers) from some seedlings of the Wild-goose plum, and not the genuine sort." Mr. Downer also told me "that none of these seedlings were near so good in quality as the genuine sort." To persons wishing to test the truth of this evidence, I will be pleased to send cions of the two genuine sorts, provided they make their wishes known before the busy season, (March 1st) and send stamps enough to pay postage and packing. Now the question arises, why are these two varieties of plums so valuable? The reasons are manifold—

Firstly, Because that "little Turk," the plum curculio, cannot master them. She carefully deposits her eggs in them, but from some unknown reason they nearly all perish either before or directly after hatching.

Secondly, They are well nigh perfectly hardy and very productive.

Thirdly, The fruit colors up while yet entirely firm, and in this condition can be sent almost any distance to market, arrive in good condition, and ripen up perfectly.

Fourthly, They are fruits of great beauty, of *good*, but not by any means of *best* quality, and have so far, and will, I think, command a high price in market.

Why was this article written? To give the readers of the Western Pomologist a word of caution, which is this: When you buy *Miner* and Wild-goose plum trees, be sure you are getting the genuine sorts. I have told you why they are held in such high estimation. Do not be deceived or deceive yourselves that if you get a Chickasaw variety of plum (*Prunus Chickasa*), that you are all right. Bear in mind that only these two varieties of this species are curculio proof. So far as I have observed, all other varieties of this species are as readily destroyed by this terrible pest, as varieties of other species. One variety of the garden plum (*prunus domestica*), the Columbia, has the same peculiarity, though in perhaps not so great a degree.

Forthe Western Pomologist.

Horticultural Meetings—Their Objects and Benefits.

By Geo. W. Kellogg, Janesville, Wis.

Friend Miller. As this is the season when horticultural meetings are the order of the day, let us have a random talk of their objects and benefits.

With our changing climate, variation of soils, and different modes of cultivation, we can easily imagine the benefits arising from an annual interchange of thought and discussion relative to varieties—when planted, soil, mode of treatment, and causes of failure and success.

When the great calamities befel the fruit interests

of the Northwest, by the hard winters of 1856 and 1857—blighting our hopes of raising the favorite varieties of our youth—the Greening, Spitzenburg, Baldwin, Yellow Harvest, &c., we then compared notes with new interest and zeal—hoping to gather enough of the fragments of our orchards to "tie to," that we might not drift aimlessly down the horticultural stream.

It is amusing to compare the lists of the best practical men then engaged in the nursery business. By correspondence I procured lists from ten of the best horticulturists of the West, and I believe no one variety was found in all lists, and some found in a majority of lists have since been thrown out. Many who stay away from these horticultural gatherings, wonder at the continual changing lists which we recommend for trial and sometimes for general cultivation.

While cutting scions this winter, we found a man with a very fine orchard, of whom we wished to cut Haas from trees we had formerly sold him. He said he had a very fine, large apple, October to December, worth all the rest in his orchard. He knew not what it was, had never taken it to the fair, had lost his register; and here let me recommend keeping one in the desk and one to carry in the pocket. He would promise me but few cions; yet I think it will prove to be one of our recommended varieties.

Now if these amateurs would bring out their choice fruits to the fairs and see if they can not be recognized, it would aid us—not that one tree in one orchard, sound and good, would prove anything unless the fact could be corroborated by other testimony. A seedling may appear perfectly hardy, and prove to be of quality sufficient to recommend it, and even take a premium as best, but on dissemination of the cions it may not prove hardy.—There are seasons favorable to the peach; and when a succession of these occur, a tender tree just planted may put on an outer rough bark that will withstand the heat of winter and spring, and appear hardy—and thus you see we may be deceived when awarding premiums to a new seedling.

The objects we seek in these annual gatherings is to bring facts and figures together and compare notes—this year more of failure than success—and if by any means we can induce the amateurs to bring their treasures of knowledge, experience and observation to aid us, we may make more rapid advancement than otherwise. That our list of recommended varieties is too large, we admit; and yet with the varied tastes and preferences, how can we make them less? To assort and try to keep from thirty to fifty varieties of apples is more than useless. We want but few of the kinds that will not keep. Harvest apples, or those that will keep till spring, will be found most profitable. With the little we now know, how much less would it have been had there been no Horticultural Societies? Let all come to these meetings.

For the Western Pomologist.

Crabs and Apples.

By J. Stauffer, Lancaster, Pa.

I was considerably amused with the attempt of Mr. Raymond, to "poke" "Cosmo," (*alias* Mr. Phillips) on the "crab" question, and the facetious remarks of the latter, in having inadvertently stirred up" a disciple of "crabdom."

Being also a student of the "Crustacea" including *twelve thousand* different species of "crabs" and about *sixty thousand* of Lobsters. Well, what has this to do with the subject at issue? you may ask.—We'll see. We cannot help associating ideas—for names are but the counters of an idea; now how could I avoid thinking of the manner "crabs are caught" when the words "pole" and "stirring up" are used as well as the word "Crabdom"—this certainly would not beget the idea of 'Vegetable Kingdom,' nor pomology; hence the gentlemen and yourself Mr. Editor, will pardon me for mixing up in this controversy on the 'crab question' but I mean 'Crabs.'

You may be aware that those who make it their business to 'catch crabs,' use a long "pole" and in still water not over ten feet deep, can see 'crabdom in motion on the sandy bottom; the "pole" is used to "stir up" the "crusty" crustracean, in the rear, —indiguant at this insult, he turns and grasps the pole;—the fisherman, gives it a slight shake as if affrighted or in pain,—the irate crab clings the harder, and like a bull dog—holds on till fairly lifted out of the water, when he only lets go, in time to drop into the boat among his silly companions.

Do you see the point? Keep in good humor Gentlemen—discuss and ventilate the subject freely—but Pomologist or Philosopher, "Crab" nor Chrlstian should ever loose his temper.

Change in Forest Trees. Spontaneous Generation.

Mr. Meehan of the Gardeners' Monthly takes the following view of this subject:

"Since the great fight between the learned men of the British Association last September, as to whether some plants have the power to originate themselves—or perhaps more correctly, to be orignated without the agency of seed—many papers in both hemispheres are discussing the question with great gravity. It is highly important that when such matters as these are discussed, the facts on which the arguments are based should be undoubted.

One of our agricultural papers, discussing the question, has the following: "We end by propouuding a question When a pine forest is cleared and burned, oaks spring up immediately, though there be no oaks for miles around. Other forests will be succeeded by chestnuts and so on.

How are the oaks and chestnuts produced? They

say that the seeds have lain in the ground for ages, ready to grow when they have a chance. Who ever saw an acorn or a chestnut in such a place? If the seed be said to be too deep to be turned up by the plow or the spade, how comes it that a seed which never sprouts except when near the surface, will grow from so great a depth? And how comes it that a seed, which like the acorn or chestnut, is certain to sprout or rot the first year it lies on the ground, can remain so long without either?

In regard to the questions as to how it comes: Our reply would be, that it does not come at all. We have endeavored to follow up some of these cases, and find no evidence whatever of it. In some cases, where a forest has been supposed to be wholly of one kind, there have been a few trees of something else mixed with the other, which few, to the ordinary observer, were not noticed. The seeds of these few trees matured annually; but the crowds of other trees produced circumstances unfavorable to their germination. The seeds thus annually produced died. But when these obstructing trees has been cut away, the seeds which fell the year before had a chance to grow. The whole mystery has been just here; and we see there is no mystery after all.

We have little doubt but that all of the wonderful cases out of our observation, have been of the same character as these which were within it. If ever the doctrine of spontaneous generation is to be believed in, it will have to be sustained by some facts which will better accord with common sense than such as the speculations above noted."

Grape Vines on the Stump.

Dr. Channing gives, in the Providence *Journal*, an interesting resume of William J. Flagg's book, "Three seasons in European Vineyards," recently published by the Harpers. The object of Mr. Flagg is to awaken an interest among our grape-growers in the new method of training vines, which is practiced in Europe. We do not know how far this system may be adopted with advantage in this country. It is important that the method is understood, and the system thoroughly tried by competent vine cultivators:

The *souche* culture of the vine converts it into a shrub in summer, and into a stump smaller than a cabbage in winter. No stake or trellis is ever required. Two or three shovel-fuls of earth, in the autumn, cover out of sight a vine twenty years old. Three-fourths of the labor and expenses of the present method are saved.

Souche training is no mystery. At the end of the first year, the young vine is cut back to a stump about nine inches high, leaving at its top, if possible, two canes reduced each to two eyes in length, which are to become permanent arms of the future *souche*. At the end of the second year, the pruning, is so performed as to give to this stump of nine inches from three to six short arms. At the end of the third year, the *souche* is so trimmed as to increase the number of short arms to six, if that number has not been previously obtained. The pruning is subsequently uniform, year by year, leaving one or possibly two canes of the preceding year's growth (cut back to one or two eyes each,) at the end of each arm. Care is taken to balance the *souche* on all sides by symmetrical arrangements of the arms. When too much old wood accumulates upon them, they are carefully cut back so as to restore the original compact form.

The greatest product is obtained from vines *en souche* when they are set out five feet apart in each direction (600 plants to the acre.) This allows the plow and cultivator to be used in field culture. One precaution needs to be observed. This is seasonably to cut off the suckers which spring up around the stump. The ground should be kept clean of weeds. The winter trimming is rapidly done by shears. The European practice of progressively stripping the vine of leaves to aid the ripening of the grape, is not adapted to our climate. Even the pinching-in the growing canes and laterals has been probably carried to excess in New England.

The grape vine on the stump can be cultivated in the garden, wherever a blackberry or raspberry can be set. Mr. Flagg especially recommends for the *souche* our short jointed varieties, carrying stiff canes. The trimming and perhaps height of the stump will probably vary within certain limits with different varieties.

In New England and the north of the United States, *souche* culture promises the means of easy winter protection for our best varieties, which we have long needed. A mature vine, reduced to such dimensions in winter, that a stove pipe hat can cover it, can be buried out of harm's way by plow and spade with the greatest ease. The compactness of the grape, *en souche*, in summer, makes it easy to apply the sulphur cure (fully illustrated in Mr. Flagg's book,) at the first approach of mildew or *oidium*. The protection from extreme cold and from disease thus afforded makes it at once practicable to cultivate *en souche* in our fields many of our early ripening European varieties. Undoubtedly our Allyn's hybrid is better than the European Sweet Water or Chasselas, and the Delaware is not excelled in its class. The Creveling and Adirondac rank high among black grapes. But all of these, and even the hardiest of our native grapes, are much benefitted in this latitude by winter covering.

The vineyards of the south of France, now occupying a million and a half of acres, have been kept from time immemorial *en souche basse*. This is true also of much of Burgundy, of Cognac, Medoc and Sauterne.

The soils of many of the celebrated French wine districts are sandy or gravelly, and contain an unusually large proportion of lime and iron. Stones in the soil are considered no disadvantage, though natural or artificial drainage is always indispensable. Valuable grapes are cultivated sometimes on soil so poor that they will bear hardly a crop of mulleins. The finest French wines come from the poorest soils, the quality being in inverse ratio to the quantity. Thus an acre yields hardly more than one hundred and fifty gallons of the choicest grape juice. The yield of Medoc and the Cote d'Or of Burgundy is only two hundred and fifty gallons to the acre, while in rapidly descending scale of quality are products of grape juice of 1,000, 2,000 or even 3,000 gallons to the acre. This is illustrated by the story of the vineyard of Clos Vougeot, the seat of an old monastery. From eighty acres the monks only obtained 1,200 gallons of very choice wines, the product of vines 400 or 500 years old. The French revolution dispossessed the monks, and their secular successors obtained from new vines on the same ground not less than 18,000 gallons of the poorest and sourest wine. Young, and recently manured vines, are considered in France on a par, and unfit to produce good wine. In France they manure once in three years; in Medoc once in seven to ten or even twenty years. To diminish the yield and perfect the fruit, the vines are somewhat crowded to the extent of from 10,000 to 25,000 on a single acre. A common number is 4,444, that is three feet apart in each direction.

In this country we want to obtain the largest possible product of ripe grapes, but we have much to learn from European experience. Our grapes frequently remain sour and never ripen; from the excessive use of stimulating manures, which induces overgrowth and overbearing. We think that young vines in New England are frequently ruined by rich artificial soil in which they are set, or by a subsequent surfeit of animal manures. Mineral manures, such as lime, plaster, ground bone and oxides of iron, need less caution. Not the least advantage of the *souche* is the severe compulsory winter pruning to which it will subject many of our varieties. A few varieties, like the Rogers' hybrids, are perhaps too rampant for this severe treatment, but they are varieties which thrive with the least amount of care. With many varieties it will be desirable, even on the *souche*, to reduce the number of bunches one-half to secure good ripening.

Pleasant Valley Grapes and Wine.

The following statement of the growth and the extent of grape and wine interest in Steuben Co. N. Y., is from the Pleasant Valley Fruit and Wine Reporter:—

One of the largest and leading grape growing and wine making interests in the United States, east of the Rocky Mountains, is in Central N. Y., in latitude 42° 30 min. north, and longitude 30 min. west of Washington City, D. C., at an elevation above tide water of nearly 700 feet, in what is popularly known as Pleasant Valley, and around Lake Keuka, lying partly in Steuben and partly in Yates counties. Here vine culture as a business begun in 1854, by the planting of Catawba and Isabella vines. These varieties had been growing here in gardens for 20 years before. The area of land suited to the growth and maturity of these grapes was at first thought to be very limited, much more so than since proved.

From a small beginning in 1854-5, with two varieties of vine only, the enterprise has gone on steadily increasing until now there are, it is variously estimated, in this Pleasant Valley and about Lake Keuka, from 5000 to 7000 acres in vines of all kinds and ages, and that ⅔, and perhaps more, are of bearing age, though not all of good fruit bearing strength—for in grape culture as it is in other, ignorance and short-sighted cupidity have a place occupied and yield their fruits. The kinds now chiefly grown are Catawba, Isabella, Delaware, Diana, Iona and Concord, while there are many others growing in less quantities. That a perfect understanding may be had of the proportions planted, let 40 stand for the whole, 25 for Catawba, 6 for Isabella, 3 for Delaware, 3 for Iona, 1 for Concord; 1 for Diana—and as there remains one-fortieth, let this include Israella, Hartford Prolific, Keuka, Walter, Eumelan, Salem, Clinton, Norton's Virginia, Ives' Seedling, Creveling, Adirondac, Rebecca, Mottled, Allens Hybrid, some of Rogers' as 4, 5, 15 To Kalon, Oporto, Una, Cape, Alvey, Rulander Taylor, Maxatawney, Union Village, Lydia, Mary Ann, Anna, Herbemont, and perhaps a few others.

The average annual yield per acre, taking the whole acreage in bearing is estimated at 3000 lbs. Some vineyards of Catawba, Isabella and Concord, do sometimes yield 4 tons and even more per acre. Other varieties as Delaware, Diana, Iona and many others, do not yield as much in like circumstances. In planting a vineyard, one year old plants of out-door propagation are preferred and are set mostly either 7x7 6x8 or 8x8, supported when two or more years old by wire trellis of three wires, number 11 or 12—the first, 18 or 20 inches from the ground—the next about the same distance above the first—the third greater from the second, say 22x24, thus divided so as to be about 5 feet high. These wires are supported on chestnut or oak posts, rarely cedar, of the size of a common fence rail, 7½ feet long, driven into the ground 2 or 2½ feet. Into these, wrought nails or staples, made for the purpose, are driven to hold the wires in place. The vintage takes place from the 20th of September to the 20th of October.

There are shipped to New York and other places, as fruit for the table, 700 to 800 tons annually. Of the other portion of the whole crop, the larger share is made into wine, some into brandy. The proportion varies with the season—some are far better than others. This season is rich in promise for the *vigneron*, at this date nothing has occurred (save a local hail storm) to interfere with the splendid growth of vine, an abundant crop of well-ripened grapes such as has not been seen since 1864-5, in earliness and perfection of ripening. The vintage will of course be more than double that of either of those years, reaching in 1870, it is supposed, 6000 tons of all varieties, in the entire area given above.

"The Pleasant Valley Wine Co. Manufactured in 1865 20,000 bottles sparkling, 15,000 gallons still wine, 1000 gallons of brandy; in 1866, 40,000 bottles sparkling, 20,000 gallons still wine, 1200 gallons brandy; in 1867, 60,000 bottles sparkling, 25,000 gallons still wine, 1500 gallons brandy; in 1868, 90,000 bottles sparkling, 31,000, gallons still wine, 1300 gallons brandy; in 1869, 130,000 bottles sparkling, 28,000 gallons still wine, 1100 gallons brandy. In 1870, at this writing, have bottled 150,000 sparkling, and will make 100,000 gallons still wine, the grapes for which are in part already purchased. The capital invested in the manufacture of wine in this locality is about $800,000. The estimated value of vineyards, $2,500,000. These combined interests give employment to no less than 2000 persons. Another incident is the manufacture of boxes for shipment of grapes. Not less than 500,000 boxes have this year been made."

The prices obtained for grapes in 1864-5 averaged growers 12c a lb. net. In 1866 there was a slight decline, averaging about 10c net for following years. This year, 1870, the crop being so fine, the wine makers have bought all the early wine grapes, paying therefor 10c a lb.

Wine without Fermentation.

1. Having removed all unripe or decayed berries, mash the grapes with the hand, or otherwise, being careful not to crush the seed.

2. Press out the juice into a suitable vessel, prepared with a fawcet near the bottom.

3. Add alcohol (the deodorized is best) at the rate of a pint to the gallon. This will effect the precipitation of the fecula and the preservation of the juice perfectly, but if you want a stronger wine add more.

4. Cover the vessel with a cloth, and allow it to stand forty-eight hours.

5. Draw off first the clear juice and then the sediment, passing both through the sand filter, but keep them separate, if practicable.

6. Put the wine into a cask and close it perfectly air-tight. It may remain there till wanted for use, or be drawn off after a few weeks and bottled.

7. Digest the *marc* (skin, seeds, &c.,) one or two weeks in a mixture of equal volumes of alcohol and water, in a close vessel, and press the filter as before, for a strong cordial.

8. Care must be take that nothing be used in the manufacture out of which the alcohol can extract any flavor, or the wine will be injured.

9. The evaporation of the alcohol, after the process is completed, must be carefully guarded against, by the close stoppage of the cask and bottles. The latter should be sealed with a composition of Burgundy pitch, wax, and tallow, using enough of each to make it a proper consistency—neither too stiff nor too brittle—melt it over a slow fire, and dip the end of the bottle into it.

Deodorized Alcohol is alcohol carefully filtered through animal charcoal, and thus rendered as pure as possible. It may be obtained from all chemical labratories in our large cities, or easily made by any one who can procure the proper articles.—*Rural Carolinian.*

Cheap Grape Trellis.

Those who read the first volume of the Pomologist will recollect an interesting article in the November number, from our valued correspondent, J. G. Mask, of West Virginia, in which he describes a very economical and at the same time ornamental method of training the grape. In a late number of the Country Gentleman, Mr. Mask describes (with illustration) another method still more simple and cheap, and which we copy:

"Plant the vines in rows, at such distances-apart as the character of the soil or growth of the grape requires. Set a stout stake, say three inches in diameter and seven feet high, in the line of the row, between every two plants. Let the stakes have a fork at the top, and lay along in these forks poles such as are used for Lima beans. Then set similar poles firmly in the ground to the right and left of each plant, lean them over to the stakes, and fasten them at the top by nailing, tying, or in any other way which may be deemed best. After the vine has been pruned, tie up the cane left for bearing to one of these poles, and as the branch intended for bearing next year proceeds in growth, train and tie it up to the other pole; and when it reaches the top, train and tie it to the horizontal pole, where it can be kept out of the way and from dangling about. By this mode of training, the bearing cane will not be smothered up with the dense foliage of its own

and the current growing cane, and the two being separated, will admit of easier handling, summer pruning, &c., as well as a considerable saving in cost. The stakes should be of lasting wood, such as locust, cedar, &c., but it is not a matter of much consequence about the poles, as they can be cheaply replaced."

For the benefit of new subscribers, we will here re-publish from Nov. number Mr. Mask's description of trellis referred to. This trellis is so very simple and plain as to require no illustration to understand its construction.

I am now growing a square of some one hundred vines in my vineyard, which will be ready for training next spring. They are set in rows of twelve feet distance, and five feet in the row, running north and south. I design to set in stout locust posts, twelve or fourteen feet high, at proper distances, between and in the center of each row. On the top of these I shall nail a three or four inch oak board, extending the length of the row. I shall then prune the vines down to two eyes, and plant an ordinary bean pole of the proper length to each vine, resting it on the ridge board, and making it fast with a withe, or other suitable fastening, to secure it to its place. When this trellis is completed, you will perceive, it will represent the appearance of a skeleton green-house. To these poles I shall tie up the vines. I will cut down to two eyes the coming spring, and train the current growth of next summer from these two eyes—one to the right and one to the left. At the expiration of the season, I shall cut down one of the canes to one eye, and let as much wood stand on the other as its vigor will justify for bearing.

Wire Trellis Stiffener.

A correspondent of the *Horticulturist* describes a cheap, simple instrument for stiffening wire trellises:

"The accompanying drawing gives a correct idea of this useful thing, though it is generally three times the size here represented. It consists of a small strip of iron a 10th of an inch thick, ¾ inch wide, to one end of which—a little wider than the rest—is fastened a rivet (A), with its head ¾ inch in diameter; said rivet is pierced through by a hole, into which the wire is passed. The wire being fastened at both ends, all it requires to tighten it, is to wind the stiffener around until the wire is sufficiently stiff, and then you make the stiffener fast by just inserting the wire into the little notch (B) at the small end of the tightener, which is bent to a straight angle, the wire itself acting as a spring. It is very easy when the wire becomes slack by the effect of heat or otherwise to give the tightener half a turn, which is all that is necessary. The above instrument was invented by Mr. Carbou, a French gardener, and is very simple and cheap, and never gets out of order."

Rot in Grapes—Its Cause.

A Cor. of the Cincinnati Gazette says:—"I have used sulphur more than twenty years, and with benefit, to prevent rot. Rot is not caused by a fungus, as some suppose, but is caused by some insect puncturing the grapes, whether to deposit their eggs or not, I don't know, but we presume it is for that purpose; yet I never succeeded in finding any eggs or worms in a rotted grape. Well, says one, how do you know they have been stung by an insect? Because I have seen the puncture and a jet of juice which had oozed out. Whenever you find a grape that is stung, tie a string to it, (for a mark so as to find it,) and watch the result. After a longer or shorter period it will turn whitish around the place where stung, and finally black, and continue to spread until the whole grape is rotted. If at any time with a sharp knife you cut out the black spot, the remainder of the grape will grow and ripen, thus proving there is no defect in the vine. Upon this discovery was based the sulphur remedy for the rot, being distasteful to all the insect tribe. Fumigations with sulphur in the evening is better than the dust, as I think the depredators work at night. I have no certain knowledge of the enemy, but always find a few large yellow bugs on the vines when the grapes are rotting—they are very shy fellows. Whether friend or foe, I know not, but kill them when I find them.

Hybrid Grapes.

Those who have maintained that there has been no true hybrid produced between the foreign *Vitis Vinifera* and our several native species, will be obliged to abandon their position. Leaving the Rogers' hybrids out of the question, there are now several which have been produced since, in which the characteristics of the native and foreign are so positively manifested, that the most skeptical can no longer doubt that true hybridization has taken place. The varieties sent out by Mr. Chas. Arnold, of Canada, show a distinct trace of foreign blood. The Senasqua of Mr. Underhill is a cross between Black Prince and Concord, and shows the foreign character in the fruit and the native in the leaf. Later, still, we have some fine hybrids by Mr. J. H. Ricketts, of Newburg, N. Y., in which the peculiar flavor of the Muscat Hamburg is imparted to a

fruit possessing in most respects the character of the natives. One of Mr. Ricketts' hybrids, which took the first prize at Bliss & Sons' grape exhibition, in September last, is a triumph of careful cultivation, and we hope to hear of its success elsewhere. It is to bear the honored name of Charles Downing.

Flowers and Shade Trees.

I seldom see two people envy one another seriously about their flower-beds or shade trees. There is a kind of religious, humanizing, generous effect in loving the beautiful things of nature, that makes us love to see everybody have them; while those who stake their respectability on dress or housekeeping, almost universally dislike to see others approach their standard, or rival them in their boasted sphere. This learning to love the beautiful things of nature, beautifies our spirits—while priding ourselves on bright tin pans, well scoured floors or costly furniture, disfigures our immortal part. The country house that has its shade trees, its shrubery and flowers, has hallowed memories to win back the hearts of its wanderers, and brighten their gloomiest hours. The woman who fails to have a green spot and shade at her door, fails in one important part of her domestic mission. Her home will not be so endeared to its inmates as it otherwise would be! True, the outside decorations should chiefly belong to man's labor; but very many men will not plant a tree or flower, who could be taught to love them and add to them if some one would begin. So, girls, do not scrub and cook and scour, until you have no time left to plant a tree or vine, and flower! Little care will suffice them when once planted; and they will do more to beautify and adorn your home than the contents of a tin peddler's cart, polished every Saturday, until they dazzle you and outshine the neighborhood.—Mrs. Swisshelm.

Colors of Flowers.

Remarkable changes take place in the color of some flowers during the course of the day. Those of the Pink Phlox, early in the morning are of a lightish blue, which alters as the day advances, and becomes a bright pink. The Œnothera tetraflora has white flowers, which change to red. The Hibiscus variabilis has its flowers white in the morning, pink at noon, and at sunset bright red. Many flowers of the Boraginaceæ are red before expansion, and afterward blue. The bracts of Hakea Victoria are yellowish white at the center the first year; the second year these become of a rich golden yellow; the third year rich orange; the fourth year blood red, and the green parts of the bracts become annually darker. Hydrangea changes its color between blue and pink. The Dahlia, of the yellow species, has been made to produce all varieties of that series, but has never been produced of a green color.—*Artisan.*

Sleeping Flowers.

Almost all flowers sleep during the night. The marigold goes to bed with the sun, and with him rises weeping. Many plants are so sensitive that their leaves close during the passage of a cloud.—The dandelion opens at five or six in the morning, and shuts at nine in the evening. The goat's beard wakes at three in the morning, and shuts at five or six in the evening. The common daisy shuts up its blossom in the evening and opens its "day's eye" to meet the early beam of the morning sun. The crocus, tulip, and many others, close their blossoms at different hours towards evening. The ivy-leaved lettuce opens at eight in the morning and closes forever at four in the afternoon. The night flowering cereus turns night into day. It begins to expand its magnificent, sweet-scented blossom in the twilight, and is full-blown at midnight, and closes never to open again with the dawn of the day. In a clover field not a leaf opens till after sunrise. So says a celebrated English author who has devoted much time to the study of plants, and often watched them during their quiet slumbers. Those plants which seem to be awake all night, he styles "the bats and owls of the vegetable kingdom."—*Ex.*

Lily of the Valley in Winter.

The Lily of the Valley may be forced into bloom in winter as readily as the Hyacinth. Select large, healthy clumps, and put them in good rich soil, and then place in a warm room, giving sufficient water to prevent drying, but not enough to cause a decay of roots. A box will answer, if pots cannot be obtained, and we are sure that those who are fond of house plants in winter, will be pleased with this little gem when in bloom; for its fragrance is not so powerful as to be offensive when in a close room.

There are many plants, the odor of which is very agreeable when inhaled in the open air, but in a close room it becomes nauseating. This is particularly the case with the new "Gold Banded Lily," (*L. auratum,*) which blooms very freely. when grown in pots; but a single flower will fill a room with its powerful perfume, and few persons can remain long in its presence. We do not believe that the perfume given off by such flowers is really injurious to health, but it is often quite disagreeable.—*R. N. Yorker.*

Apples Rotting.—The complaint is general all over the country, that winter apples are not keeping as usual, but are rotting badly. To us there seems no great mystery about it, it was rather to be expected than wondered at, after a season so hot and dry, which dwarfed the apple and ripened it up prematurely. Another cause of this premature decay may be traced to the destructive work of the Codling moth.

Frogs Spitted on to Thorns.

Last Spring, in a portion of our nursery grounds where the grafted trees had been taken up and quite a number of seedlings left standing for the time being, numerous little frogs about two inches in length were discovered one day spitted upon the thorns of the seedling trees, and also lodged in the

sharp forks of small limbs. From the position in which these frogs were found, as herewith illustrated, our solution of this most singular phenomenon was, that they must have been showered down from above. When first noticed they were in a most perfect state of preservation, and are still. Curiosity not long since prompted us to send a few specimens to Mr. C. V. Riley, Missouri State Entomologist. We append Mr. R.'s explanation, but with all due deference for his opinion, we beg leave to differ. How could these creatures be taken up, and be so nicely and thoroughly impaled upon the thorns of the trees by the beak of any bird, with no other signs of mutilation than shown by the perforation of the thorns upon which they were lodged?

Mark Miller, *Dear Sir:*—The young frogs which you send and which you found impaled on the thorns of an apple tree, did not attain this curious position by falling in a shower, as you suppose. They were undoubtedly placed there either by the White-rumped, *alias* Great American Shrike (*Lanius excubitor,*) or by the Loggerhead Shrike (*Lanius Carolinensis*) and in all probability by the former of the two species.

These bold, rapacious birds are commonly called Butcher Birds, and have long been known to have the singular habit of impaling their prey not only upon thorns, but upon sharp-pointed splinters of wood and even upon iron spikes. They use either bird, beast, reptile or insect for this purpose, and not unfrequently manage to kill birds as large as themselves. The enclosed hasty sketch which I have made of the frogs sent, will give your readers a good idea of the manner in which their victims are impaled right through the body; but it is related of the Lesser Butcher Bird of England (*Lanius collurio,*) that when it catches large beetles, such as the "Cockchafers" or "Tumble-dungs," it impales them through one or other of the hard shelly wing-covers, so that the beetles may afterwards be found buzzing round and round for hours, and not unfrequently escape and are captured at large with a large hole through one elytron. It has been supposed that this impaling process was carried on by the Butcher Birds because their digestive organs were incapable of dissolving fresh meat. But this supposition can scarcely be the correct one, from the fact that they frequently eat newly-killed animals; and we must conclude that it is because, like some other bipeds, they prefer venison to fresh flesh. C. V. Riley.

Study of Botany.

Of the sciences that bear directly upon Agriculture and Horticulture, botany may be reckoned among the first. The farmer is brought into closer contact with nature than any other man, except the professional student of nature. He dwells and works in the midst of the great laboratory.

A knowledge of botany, even if it does not go beyond the names and properties of the plants, the trees, the grasses and the flowers, which everywhere surround us in the country, adds an unspeakable charm to country life. Just as a traveler, who is familiar by long years of study with the antiquities, the history, the literature of ancient, medieval and modern Europe views any scene in any way connected with the history of the past with infinitely greater zest, because he is capable of a fuller appreciation than another who has no such advantage—so a farmer, or any dweller in the country, who has a knowledge of botany, has within himself greater capacities for a full appreciation of nature than one who has not this advantage.

But especially should the farmer study and make himself familiar with the common plants of the farm. This is not so formidable a task as many seem to suppose. The hardest part of it, for one who has everything to learn, is to begin. A good beginning once made, the interest increases, intensifies, becomes almost a passion, and the subsequent acquisitions bring with them their own reward.—*Selected.*

The Whortleberry.

The whortleberry, or huckleberry as commonly called, like the blackberry, is fast passing away from among us as a wild fruit; and unless some exertions are made toward its cultivation, not many years can pass ere the fruit will become a rarity in any section, and entirely unknown where perhaps now it is abundant. Although a native wild fruit, yet it has ever been confined to certain limits and sections of the country, and as soon as these sections are cleared up and cultivated, the whortleberry disappears; while it is yet to be had in some sections for the picking, its value in the New York and other city markets is such that we feel assured it would prove a more remunerative crop than strawberries; and once a plantation of it is made, it is permanent and will require but little care annually to continue it. The past season the fruit has sold as high as eleven dollars a bushel, and not below five, to our knowledge. In productiveness it is surpassed by no plant or fruit producing shrub, we having often gathered a quart from a single bush, which, if allowed as a rule, and we consider an acre planted with bushes, at a distance of one by three feet, would give about three hundred and eighty bushels, that, counted at the lowest price—five dollars—would amount to nineteen hundred dollars. But we consider this a fancy estimate, and only produce it to show how the matter can be figured up. Let us take a more moderate view, and putting the crop at half a pint to the plant—certainly a safe estimate—and we have then ninety-five bushels to the acre, which, at five dollars, would give over four huudred dollars to the acre, an amount beyond the average of the berry crop generally.

Thus showing its value when produced, we have next to take the soil, cultivation, etc., required to produce it. In its wild conditions it is found in almost all soils, from a poor, hard, thin clay, running through all the grades of sand and loam, to a deep, rich, but wet, swamp muck, so that we can have little doubt of success, plant it where we may. In its varieties, it is found wild in shade and in open bleak exposures, so that here again we have reason to look for success in almost any location; but whether it will bear cultivation of the soil, or require the surface to be kept in turf or mulched, as it is found wild, is a point yet to be proven by practice; but that it can be grown as a crop, and profitably, we have not a doubt, and trust the subject will be soon brought before our nation by some energetic person as to induce general attention and soon extensive planting.

The foregoiug remarks from the *Horticulturist* concerning the huckleberry are true. Why so valuable a fruit, and one so easily propagated, should have received so little attention from the pomological world, and especially from amateur cultivators, may well be wondered at. That the huckleberry and the blueberry, which are almost identical, differing but very little in quality or habit of growth, can be successfully grown in Iowa, we have fully demonstrated.

In the fall of 1864, we obtained from the fields of our old homestead in N. Hampshire, a few plants of the high bush blueberry. They were buried for the winter, and in the following spring planted out in the garden. They have done well, and bid fair to be as fruitful here as in their old locality.

The blueberry makes a very slow growth, is very hardy and very productive. There are two varieties of the blueberry—or rather, two habits of growth—the high and low bush, as they are called. The former attains a height of four to six feet—the latter does not exceed fifteen to twenty inches. The high bush is the most productive; larger and better than the fruit of the low bush. The blueberry and the huckleberry may be readily propagated from the seed. For pies, the blueberry and the huckleberry take precedence over any other fruit. The fruit is easily preserved by drying, and retains its natural flavor quite as well, if not better, than either the raspberry or the blackberry.

Fruitfulness and Longevity.

It is a qLestion whether in our eagerness to promote the fruitfulness of trees and grape vines, we do not thereby impair their vigor. At least, there are many facts which look in that direction.

For example; if we prune a vigorous growing tree in mid-summer, it will be likely to bear fruit the next year, but will make little new wood. For the tree has received a shock which it will take a year or two to recover from. We dwarf our pear and apple trees to throw them into early bearing, but every one knows that such trees are not long lived. And they will become weak and die out just in proportion as they are allowed to overbear. If we let a young grape vine bear heavily, it checks its growth for several years. So too, if we would keep a mature vine or pear tree in good uniform health and productiveness from year to year, we must thin out the fruit every year.

Every observer must have noticed that the foliage of a vigorous tree which produces little fruit, is much larger and greener than one which is very productive. The foliage of the latter is pale and sickly, and falls off early in autumn. If a tree is planted in poor soil, it may be thrown into early bearing, but the fruit will be small, and the tree will lack in vigor.

Both in the vegetable and the animal kingdoms, there must be kept up a strong base of phisical strength, if we would gain the best results, and for a long period. There must be generous food and a good physical development, in order to a sound mind, healthy feelings and permanent activity. So there must be a good soil and an avoidance of excessive fruitfulness, if we would keep up the vigor of our trees and vines for a long succession of years.—*Rural American.*

The Western Pomologist.

The New Volume—To our Friends.

In commencing the second volume of the WESTERN POMOLOGIST, we beg to thank our friends for past favors, and to say a few words respecting our enterprise. The establishment of a new paper at the present day of competition in journalism, whether horticultural, agricultural, political or religious, is, at best, a difficult and laborious task. But the POMOLOGIST was commenced under peculiarly unfavorable circumstances; there were already three old, well established and ably conducted journals, to say nothing of the many agricultural journals throughout the length and breadth of the country with their horticultural departments. Then again, comparatively, the West is yet newly and sparcely settled, and, in the very nature of things to a great extent, by those whose occupations are not such as to ensure the general reception of a paper devoted exclusively to the interests of pomology and horticulture. In the face of all these adverse circumstances, it was prophesied by many, on the appearance of the paper, that it must speedily succumb to its seignors in the attempt to share their patronage. This idea, however, we utterly repudiated—believing that there was ample room for a new horticultural journal—that in the locality and rising importance of the West, was to be found a pressing demand for such a paper.

And now, friends, have we erred? Shall this promising field be abandoned after having been at least partially occupied for the past year? Consider the value of knowledge in every department of human affairs, and of the indispensability of the Press in diffusing it, and see if every means of improvement is not demanded—shall not be laid hold of and vigorously employed. Much has already been learned, but there is yet before us a vast pomological field for exploration.

We shall be unremitting in our efforts to improve the paper—to make it a source of instruction and usefulness—confidently relying upon the help of our friends to aid us in making it all that is needed. Shall we have it? Is our enterprise worthy of support, and if so, will you not help us to obtain it? In view of the past, we are impressed with the belief that the enlargement of the paper and other improvements will be met by a corresponding liberality on the part of our friends.

Trees Girdled by Mice and Rabbits.

At no season of the year is the orchard exempt from some kind of pest or other. While bugs and other creeping things are taking their winter nap, rabbits and mice are active and come in for the lyon's share, for they often destroy the very life of the tree attacked. As a protection it is recommended to throw up a mound around the stem of the tree; but bandaging with coarse, thick paper, saturated with linseed oil to protect it from the weather, is unquestionably the very best of all preventives, or, wrapping with hay or straw rope to the height of two or three feet. This, however, involves more labor than most men will give. For the last six years there have been wintered upon our premises many thousands of trees—varying from one to ten years of age. And though rabbits have been very plenty about the grounds, with the exception of one winter, not a half dozen trees all told, have been touched, and that was in one corner of the nursery, near which no corn had been grown the previous season, or the precaution taken to distribute corn among the trees occasionally during the winter. We do not believe that either rabbits or mice will meddle with trees if corn be thrown in their way. Our practice is to have corn grown near both orchard and nursery, and to leave a little of it on the ground accessible to rabbits and mice.

To save the life of a tree after the damage is done, if girdled all around, entirely severing the bark, it is recommended to insert scions beneath the bark above and below the wound, thereby forming a new connection between the severed parts of the bark and wood. A very narrow connecting strip of bark will save the life of a tree. Mr. D. B. Weir, of Lacon, Ill., an intelligent horticulturist, and one of our regular correspondents, gives to the Western Farmer his method for saving girdled trees, and which he represents as very successful:

"Look over your trees the first thawing day after each snow, and if any trees are found girdled or injured, proceed at once to bank snow around the tree, tramping it down hard, if the ground is frozen; if not, bank soil around it say six inches above the highest point injured. If it is frozen, use snow and replace it with soil as soon as possible—if you can, before the snow has melted so as to expose the wounds.

You need pay no more attention to the tree until from the first to the middle of September following, leaving the mound intact until that time. The mound should be taken away then, and the wounds will be found to be entirely rebarked over.

So confident am I that this remedy is perfect, that I would be perfectly willing and happy to have an army of mice take all the bark from my orchard of 12,000 trees both old and young, within their reach, standing flat footed on the ground, for the small sum of ten cents per tree!

Rabbits sometimes injure trees so high upon the trunks as to be incovenient to earth up above the wound. An application of shellac varnish applied to it and that covered with cloth bandage, will prevent all injury."

Pears in Northern Wisconsin.—At a meeting of the Oshkosh (Wis.) Horticultural Society, Dec. 14th, some time was spent in a discussion on the pear. Mr. Brainard thought that a bushel of pears might be raised there as easily as a bushel of apples. Mr. Crosby had seen a small tree of the Duchesse d'Angouleme in a neighbor's grounds the last season literally loaded down with fine, large fruit, one specimen weighing 28 ounces. Mr. Paddleford of Omro has two promising trees of the Duchesse.

Mr. Crosby wished to know if any one present had, or knew of any one who had, pear trees growing now that passed safely through the winter of 1865.

Mr. J. H. Osborn said H. Floyd, of Eureka, has a row of pear trees in his orchard which have been pronounced by competent judges to be the finest in the State, all of which passed unharmed through the severe cold of that winter. Mr. Chase has one tree which was grafted on the thorn, which was unharmed, and bore freely the following year, doing well. Mr. Chase would place Flemish Beauty first on the pear list. Mr. Brainard has two trees of the White Doyenne, which grow and bear well. He presented a sample of the fruit in a bottle, preserved as he said, by simply pouring boiling water into the bottle after putting in the fruit, and sealing up immediately.

Mulberries for the Birds.—Planting the white mulberry near the cherry orchard is recommended to protect the fruit of the cherry from the depredations of birds. A correspondent of the New York Farmers' Club also believes that the presence of the mulberry has a preservative influence upon the tree itself. During the famous morus multicaulus speculation he planted a "lot of them," but which soon became worthless. The sequel was, as he says: "I saved some white mulberries near the carriage house and granary. About the same time I planted a cherry orchard, and a variety of plum trees. They all flourished finely, and soon had fruit in great abundance. The mulberries were ripe about the same time with the cherries, and continued ripening until late in the autumn. The birds were delighted with the white, sweet fruit, and left the cherries untouched. In process of time my mulberry trees interfered with my buildings, and I was forced, reluctantly, to cut them away. Soon my cherries became knotty, wormy, imperfect, and but few on the trees. The cherry trees and many of the plums evinced signs of decay; large black balls or knots on the limbs of old and young trees. This I believe to be the result of cutting away those splendid mulberries. I never saw an apple tree borer in my 45-year old apple orchard until just before I sold my farm, four years ago, and after the mulberries were destroyed."

How to Test Grapes.—Upon this point F. R. Elliott gives some wholesome advice through the Rural New Yorker, and which, if heeded, might save some enthusiasts from being humbugged by pets of their own creation. Not one out of fifty of the new grapes brought out within the past five or ten years, are worth one brass farthing to the vineyardist. Mr. E's advice is, that every "person who think they have a good wild grape, to procure the Concord, and plant it along side, and when they both come into bearing make a careful comparison; and if the wild sort is really superior in size, tenderness of skin and pulp, and delicacy of flavor, then preserve it for further trial; but should it fall below the Concord in any particular, throw it away as unworthy of preservation.

We select the Concord as a standard for comparison, as no variety inferior to it should be preserved or propagated. It is true, that we have many varieties in cultivation that are greatly inferior to Concord, and that is just the reason why no more of this kind is wanted."

California Wines.

It is estimated that between 700,000 and 800,000 gallons of red and white wines have been made in Anaheim this season, and of a better quality than that of any season heretofore. The amount is 250,000 gallons in excess of the yield of any previous year. Owing to the fine weather and extra condition of the grapes, this wine is already so thoroughly fermented that it will be in a marketable condition in 60 days. The grapes are all gathered, and the wine-making is finished for the season. Preparations are making for the immediate setting out of from 300 to 400 additional acres of vines. So, in a couple of years' time, we may expect Anaheim to produce from 1,000,000 to 1,500,000 gallons of wine per season. We have been shown samples of the white Malaga raisin, of unusual size and flavor. Between 300 and 400 boxes of these, made this year as an experiment, are certainly superior to any in the market.—*Boston Cultivator.*

Cleanliness of House Plants.

The London *Cottage Gardener* relates an experiment showing the advantage of keeping the leaves of plants free from dust. Two orange trees, weighing respectively eighteen and twenty ounces, were allowed to vegetate without their leaves being cleaned for a year; and two others, weighing respectively nineteen and twenty and one-half ounces, had their leaves sponged with tepid water once a week. The first two increased in weight less than half an ounce each, while of the two latter, one had increased two and the other nearly three ounces. Except the cleaning, the plants were similarly treated.

Notes and Gleanings.

Northern Illinois Horticultural Society.

Ed. Western Pomologist: The Annual Meeting of the above Society for 1871, will be held in the city of Rookford, Ill., January 24, at 2 P. M. The programme, though not completed, we are warranted in saying will be one of the best yet offered; and this meeting, we are assured, will be as large as any former one of this Society, which have been the largest held in the Northwest. Already we are enabled to announce lectures from Dr. E. H. Hull, State Horticulturist for Illinois, and Dr. John A. Warder, author of "American Pomology."

Dr. Hull will lecture on Tuesday evening, Jan. 24, on "Insects Injurious to Fruits and Fruit Trees —How to Exterminate—and Importance of Concert of Action among Fruit-growers in the North." Dr. Warder lectures on Wednesday evening, on "The 'Iron-clads' for the Northwest." Many valuable papers are promised from gentlemen eminent in horticulture, and no effort will be spared to make this the most interesting and profitable session of this Society. A cordial invitation is extended to all interested to be present.

D. Wilmot Scott, Cor. Sec'y.

Trapping Garden Slugs.

M. Commandeur, of Paris, a scientific gardener, in the course of some experiments hit upon an ingenious method of killing slugs, the annoyance of which is often felt by gardeners. M. Commandeur accidentally left in his garden a pot in which he had been making experiments with starch and iodine, which pot, imperfectly covered with a bit of board, remained exposed to the heat and rain for three weeks, when, on looking one morning into it, he was surprised to find it tenanted by scores of snails and slugs that had congregated in it from every part of the garden. He repeated the experiment several times, and became assured that the emanation of iodine will attract these creatures from a considerable distance, when they may be killed.

Greenhouse Pests.—The Mealy-bug and Red-Spider, as we hear from the best authority, will stand any amount of tobacco smoke, while plant-lice (*Aphis*) are thus easily killed. The red spider, however, may be got rid of by exposing the infested plants to the rain, and the mealy-bug by a wash of cresylic soap, sufficiently diluted not to injure vegetation. Cresylic soap is a very useful agent for the destruction of many kinds of insects.—*American Entomologist.*

Wine at Pleasant Valley.

The Pleasant Valley Wine Company manufactured 78,500 gallons of wine, using for the purpose 587 tons of grapes. The Pleasant Valley Reporter says that notes were taken of the strength of the must at each pressing, with dates and names of sorts:

"The first pressing of Catawbas was made as early as September 23, and showed 83 deg. sugar. Some of the latter pressings showed as high as 95 deg., the average was nearly 88 deg. The Iona went from 91 deg. to 98 deg. The average was a fraction over 95 deg. The average of Delaware was 93½ deg. All kinds went high and were more perfectly ripened than in former years. From Walter grapes, sent by Messrs. Ferris & Son Poughkeepsie, 15 gallons of wine were made; the must showed 102 deg., Oechsle's scale."

Management of Hyacinths.

Ed. Pomologist: I notice in the Pomologist some remarks upon the management of Hyacinths, my experience is, that the *roots* should be stimulated to grow *first*, sufficient to fill the pot well. To accomplish this, plunge the pots in an old hot bed and cover them three or four inches with loose litter, and leave them exposed to the weather until they are wanted; bring in a few pots every week, and you may have an abundance of flowers all winter

To protect tender roses, lay them upon the ground and select good well-grown turf and lay over them, the *grass side down.* Half-tender roses are perfectly protected in this way, A. C. H.

Detroit, Mich.

The Rose on the Lawn.—An English journal recommends the culture of the rose on the lawn and pleasure grounds as a a standard. "Few persons are aware of the magnitude to which the rose may be grown, or the splendid effect it can be made to produce on a lawn or pleasure ground; yet with a sufficiently strong stem, and a system of careful and patient training, there can be no reasonable doubt but that the standard roses could be grown to the size and form of the ordinary examples of the Weeping Ash, having the branches all produced from the top of a single stem, and flowing downward on all sides—a very ornamental object for a lawn. It may also be observed that the construction of a comfortable seat round its stem would form a cool and fragrant retreat during the hot days of summer,"

Price of Wine. The Journal of Chemistry calls the attention of wine-drinkers to the fact that notwithstanding the disasters to French vineyards growing out of the present war, the price of wine in this country is not yet affected.

Preserving Fruit Juices.—The juices of raspberries, pine-apples and other fruits, are useful for flavoring ice cream and similar purposes. The juice can be readily preserved by bottling. Express the juice and put it in bottles; set the bottles in a cold boiler with a board or grating under them to prevent contact with the bottom of the boiler. Heat up the water and continue at the boiling point until the contents of the bottles are heated through. Cork the bottles while hot, seal and keep in a cool place. The bottles should not be so large as to contain more juice than enough to use at once, as it will not keep long after being opened.—So says one of our exchanges.

Fruit in England. The Gardener's Chronicle, (Eng.,) reports the fruit crop of 1870 the largest known to the present generation.

Peach Crop of 1870: The peach crop shipped from St. Joseph, Mich., for 1870, is thus footed up: The first shipment of three baskets, in 1870, was made on the 27th of July. The previous year, the first shipment of five baskets, was made on the 4th of August. The total shipments for 1870 are reported to have been as follows:

July 15 to Aug. 15..... ..	19,078	packages.
Aug. 15 to Sept. 15.....	87,008	"
Sept. 15 to Oct. 15.....	55,882	"
Total shipments.....	161,968	"

Well Said. The Country Gentleman says: "Tree planters do not like to be deceived; and they often ask nurserymen to *warrant their trees true to name*. There is a better way than to require such warranty, Buy of nurserymen who have a well established reputation for intelligence in their business, and fair dealings."

A Flower Sermon.—There is in Oldgate, London, a rector who has for years past preached an annual flower sermon to the school children of his own and the surrounding districts, for the purpose of inculcating in them a love of those floral beauties that speak as much of the existence of a Creator as anything else on earth.

Hemp for Cabbage Worms.—A correspondent of the American Institute Farmers' Club writes that in Germany, gardeners plant hemp among their cabbages, or surround the field with a row of it. The perfume of this plant when in bloom is offensive to the butterflies, and they do not deposit their eggs in the cabbages, and thus the crop is saved. He recommends later planting in this country as a means of avoiding the caterpillars.

A New Hampshire farmer lost $10,000 worth of timber by smoking a fifty-cent coon out of a hollow log.

Soil and Ripening of Small Fruits.

In all my descriptions of different varieties of small fruit, in speaking of *earliness* I refer to the *general crop*, and not to a few scattering berries.—Perhaps there is no strawberry grown that will *color* a few berries earlier than the Wilson, while its main crop or picking is fully four to five days later than many other sorts.

The Downer's Prolific ripens up a fine picking with me before the Wilson's Albany, if not grown on too rich soil; and too, the *bulk* of the crop ripens up early, which is not the case with the Wilson.

This same thing is noticeable in the raspberry or blackberry. The Philadelphia will turn a *few* berries as early as the Kirtland, but the last yields *all* of its crop *early*, at three or four pickings, while the Philadelphia extends along for weeks and months. Just so with the Miami and Doolittle. The first will ripen up a *few* berries as early as the last, but the last will all be gone by the time the first is yielding full pickings. The Wilson and Kittatiny blackberry show the same characteristics. The last will ripen up a few berries as early as the first, but not its *general* crop. Now what are the advantages of one over the other? Simply that the Downer, Doolittle, Kirtland and Wilson's Early are *all* marketed when the price is high, while the other dwindles along late and brings less price—that is in the markets where *earliness* is a requisite for *profit*.

Another point. The Downer should not have rich heavy soil. If grown on such it grows rank—sending up long leaf stalks and large leaves which cover and shade the fruit, and which detract from the fruitfulness of this variety and make it fully a week later. The same with the French. They delight in a light sandy soil of only medium richness, and when planted on such seem to run wonderfully to fruit and yield their crops *very early*. Rich soils do not seem to affect the Wilson so much in that way. This is an important matter that all should consider. That some varieties are affected more than others by soil, especially in earliness, and in order to test the *earliness* of different sorts, the soil that is *best adapted* to them, and that affect the earliness and lateness of each, should be taken into consideration. Give the Downer a light sandy soil, and not over rich.—*Cor. Country Gentleman.*

Vitriol for Cabbages.—A correspondent of the New England Farmer says if "persons who have lost their cabbages this year by the caterpillar, which is the offspring of the *Pieris Rapæ*, will another year, after setting out their cabbages, keep them well sprinkled with a solution of blue vitriol and water—a piece of vitriol as large as a walnut to a pail of water—they will not be troubled much with the worm. Hellebore answers very well in place of the vitriol. Care must be taken not to get the solution too strong, as it is poison. Liquid hen manure is also very good." We regard this recommendation with much distrust.

There is in Washington Territory an immense cranberry marsh, yielding one hundred thousand bushels in a single year.

Kalamazoo complains of the apple rot. Some experienced fruit raisers say it occurs every fifteen years.—Bosh.

One thousand barrels of cider were made at the cider mill on the town farm in Hopkinton, N. H., last season.

Moles are justly regarded a great nuisance in the garden. It is said that cobs dipped in coal tar and placed in their run-ways will clear them out.

It is said that cotton prevents or retards the ripening of winter apples and pears, while wool hastens this operation, and at the same time gives green fruit a handsome yellow color.—*Selected.*

Origin of the Baldwin.—It has been generally understood that the Baldwin apple originated in Massachusetts, but a story has recently been related in the Boston *Cultivator* which makes it an importation. It is charged that the cions which produced it in this country came from England, where good apples are not produced in abundance.

Packing Grapes in Russia.—It is said that in southern Russia grapes intended for the St. Petersburg market are gathered before fully ripe, and packed down in earthen pots in alternate layers with well dried millet seed. The grapes must not touch each other, and the pots must be tightly sealed. Put up in this way, they are said to keep a long time and to improve in flavor.

Apples in New Hampshire.—Mr. Joseph G. Morrill, of Canterbury, N. H., raised the past season about 1,000 barrels of fall and winter apples, which were marketed at prices ranging from $1.25 to $4.20 per barrel. Aside from this in the fruit line, Mr. M. had a fine crop of early fruit which sold in the Boston market at high prices. He also made about 50 barrels of cider. Surely, there is one branch of business that pays well yet on the old New England farms.

Primroses.—A Cor. of the *Gardener's Monthly*, says "primroses afford more satisfaction for the little care they demand than any plant of which I know for the window—troubled by no insect, and continually in bloom. I have two plants that have bloomed this makes the third winter. They are now 3½ feet in circumference, their large pendant leaves nearly obscuring the pots, making beautiful objects for brackets each side of the window. I have counted a hundred blossoms open at once on one plant."

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Silver Hamburgs, $5.00 per pair—$7.00 per trio.
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CATALOGUES.—The receipt of catalogues from Nurserymen, Seedsmen, &c., whose names appear upon our subscription books will be promptly acknowledged.

GREELY TRIBUNE AND UNION COLONY.—We have received several numbers of the *Greely Tribune* published at Greely, Colorado. Devoted to the Union Colony, of which the town of Greely is the center, and to show the advantages of colonization, and to call attention to the attractive and wonderful resources of the Rocky Mountain country, of which little as yet is known. To teach that the highest power which man can exhibit, grows out of mental culture and well established habits of industry connected either with the cultivation of the soil or mechanical pursuist.

To enforce the doctrine that the foundation of all prosperity is based on the family relation as maintained in civilized countries, and the highest ambition of a family should be to have a *comfortable home, surrounded by orchards and ornamental grounds on land of its own.* The above are the principal objects of the *Greely Tribune*, and we are very highly impressed with the enterprise.

We are pleased to see in that new colony, that steps are to be taken to organize a Colorado Institute, the object of which is to advance the interests of Agriculture, Horticulture, and Mechanic Arts. A branch under the name of Farmer's Club is to hold weekly meetings. We hope they will read the WESTERN POMOLOGIST, devoted to all branches of Horticulture, being a Western paper almost bordering on Colorado, which partakes more or less of that climate, and having contributors from almost every district of country.

Peterson's Magazine.

For December is on our table in advance. It is unusually splendid even for "Peterson." It has two supurb steel plates, a mammoth colored fashion plate, a costly colored Berlin pattern, and more than fifty wood engravings. "Peterson" is unquestionably the cheapest and best of the lady's books. It will give, in 1871, one thousand pages of reading, 14 steel engravings, 12 double-size colored steel fashion plates, 24 pages of music, and about 900 wood engravings. We never saw a more beautiful fashion plate than there is in this number; in fact the fashions in "Peterson" *are always superior to those to be found elsewhere.* Another leading merit of this Magazine is its unequaled stories and novelets. Mrs Ann S. Stephens, Frank Lee Benedict, an dothers of the best writers, contribute to it exclusively. In 1871 there will be given *five copy-right novelets*, besides about *one hundred short stories.* The price of "Peterson's" is only two dollars a year to single subscribers, while other magazines of its class are three or four. To clubs the terms are lower still, viz: five copies for $8, or eight copies for $12. Every person getting up either of these clubs will receive the magazine for 1871 gratis, and also a splendid copy-right engraving, (14 inches by 20,) "Washington at the Battle of Trenton," of the merits of which we can speak from personal inspection. *Now is the time to get up clubs.* Specimens of the magazine sent gratis if written for. We advise you to subscribe for nothing else until you have seen a specimen. Address CHAS. J. PETERSON, 306 Chestnut street, Philadelphia.

The grasshoppers did not visit Western Texas last year, but the farmers there report ravages from a small, active, striped bug, which literally ate up everything, nearly as thoroughly as the grasshoppers.

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Associate Editor, - - *Leavenworth, Kansas.*

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Should Trees be Pruned?—The Philosophy of Vegetable Growth. No. 2.

BY THE ASSOCIATE EDITOR.

In our former article we gave the general theory and the arguments based upon them in favor of pruning trees at transplanting, with our remarks upon the same. It is remarkably strange that a system so at variance with physiology, should be universally believed and practiced. Before we present our views on prnning, we will first consider the philosophy of vegetable growth to which we now call your careful and candid attention.

To fully discuss this subject we should properly understand the physiology of plants, for the functions of vegetable life are governed by certain principles as much as animal life. The different parts of a plant have their offices to perform which are essential to their healthy existence. The destruction or derangement of any of them deprives the plant of the ability to perform its duty, as no part can perform the office of another. Every seed preserves the principle of life and retains organic matter to nourish the young plant, and when placed in congenial soil germinates. Its radicle attaches itself to the soil, and the germ seeks the atmosphere; the cotyledons are developed and the elementary plant is established by virtue of inherent life. It is born into a new state and its conditions are changed, the radicle spreads out in various directions to seek nourishment, but it has no power to build up or solidify its frame without the rays of the sun. The plumule extends itself and forms the trunk with its numerous branches and leaves, but it is only built up by virtue of the sun's rays, and the rays of the sun have no power of building up the tree without azote furnished from the soil, and the azote cannot be supplied to the tissues without the *buds*. Hence within the *germ* lies the vital force which, when acted upon by the sun calls into activity the functions of the plant. If these are destroyed the plant immediately ceases to grow, but may however retain vitality long enough to form new germs or buds, but if not it will soon languish and die.

Now as the germ of the seed has its radicle in the soil, so have buds their radicles in the tree; they being individual embryo plants with all the rudiments of the tree capable of being propogated the same as with the seed. Therefore as the germ is the living vital principle of the seed, so are the buds the *living vital principle of the tree;* neither can grow without them, the one is nourished by the soil, and the other by the *tree*, and both are stimulated into active growth by the sun, light and air. Azote forms the rudiments of the plant which cannot be developed without it, and stimulates the buds and leaves to decompose carbonic acid, and gives that healthy, green color and vigorous growth to the plant. The sun furnishes heat and light, and the atmosphere carbonic acid, and the dark green part of the plant (*chlorophyll*) decomposes it, extracting the carbon which unites with the water supplied by the roots, thus forming numerous and different compounds, whose infinite variety transcends the dreams of imagination.

Thus it appears, we have a succession of causes within the plant, which are necessary to the growth of the tree, the *germs or buds* being primary, and we have also a chain of conditions independent of the plant, the *sun* being principal. The *terminal buds* are absolutely necessary for its rapid growth, as they are the prime conductors of electricity.—The same is true with the roots; they spread out in the direction of the greatest moisture to conduct the current off rapidly, at the same time returning the fluids containing the elements from the soil which are deposited in the different parts of the plant by chemical affinity. By this means the organism is built up by cells elongated by electrical force. If it were not for this power they might expand in width instead of length. When this force ceases to accelerate their growth they then commence to swell their buds instead of lengthening them, which produces fruit-spurs and fruit. This takes place for their permanent good only at their natural maturity.

Now as the leaves, buds and bark absorb from the atmosphere more than one half the bulk of the tree, they not only hold an important relation to its healthy vitality and constitution but they also govern its growth, form and deposits, upon which depend its distinctness and identity. By virtue of their substance and color, the tree becomes not only well organized but healthy and productive. Now if the buds are destroyed by cutting them off or pinching-in, the next buds to those injured push forward to perform their office. While they are doing so the growth of the tree is checked until *new buds* take their place, or those left are called upon to perform extra duty. This check of growth is a loss of time which can never be recovered.

(*To be Continued.*)

The Apple ---Its Propagation. No. I.

By the Associate Editor.

In presenting this series of articles on the apple, it cannot be expected that we will give a lengthy treatise, but rather a simple, concise and condensed paper upon the subject, and in doing so we have but few preliminary remarks to make: The matter embraced in this series of articles will include the apple from the seed to ;the full grown and matured tree, with its fruit stored away for future use.

The seed should be first separated from the pomace or procured clean. Then sow in the Fall or Spring, on deeply ploughed new or clean ground in drills about six or eight inches wide, and if in the Fall, three inches deep and the rows two feet apart. If sown in the Spring, the seed must be first soaked about ten hours in tepid water in cold, freezing weather—say February or March, and then spread out on boards so they will freeze once thoroughly through; additional freezing is not necessary but will do no harm. They should then be immediately mixed with about five times their bulk of moist saw-dust, and then put into barrels and

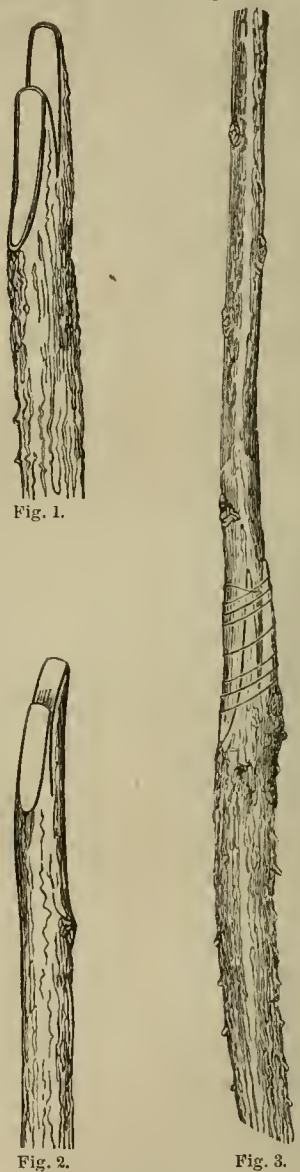

Fig. 1. Fig. 2. Fig. 3.

Fig. 1. Root ready to receive the Scion.
Fig. 2. Scion prepared for setting.
Fig. 3. Root and Scion joined and tied.

placed in a cold situation on the north side of a building and let freeze if they will; if not they must be kept thoroughly wet until planted or they will heat and spoil. Sow the seed by hand, with the sawdust, very early in the Spring, about two inches deep. making allowance for the bulk of sawdust, so the seed will average at least half an inch apart all over

the drill, which may be made with a common hoe, by drawing it level, leaving the drill the full width of the hoe; then cover with a rake, removing all the clods. As the seed comes up keep them clean by hand-weeding and hoeing thoroughly throughout the season. In the Fall, in October or after the first hard, killing frost, take the seedlings up with a plough and tie into bundles of several hundred each with a willow, and then store in the cellar by covering them up with damp sawdust or earth for grafting.

They may be grafted any time from January until early Spring. For that purpose scions should be cut of the current year's growth, from the outside branches that were fully exposed to the light and air, of well-matured wood. When but few scions are required, the terminal buds of bearing trees are the best. In Kansas they may be cut any time except when frozen, from the fall of the leaf until before they start in the Spring, but in more northern latitudes and colder sections they should be cut in October, or after the first hard, killing frost, even with the leaves on and tied up in that condition tight, with two willow ties near each end, in bundles of several hundred each with a long label stuck in from the top, with the name of the variety and number plainly written upon it, with the end but slightly exposed, for easy access and future reference. They should then be packed away in the cellar, all of each variety together with their butt ends covered about eight inches deep in damp sawdust or earth, with their tops upright and exposed, so you can conveniently select what you desire. It is best to count the scions as you cut them in bunches of twenty-five each and lay down with the tops the same direction, for convenience afterwards in picking up, counting bunches, and making bunches of larger size and equal numbers. If to be shipped, the leaves should be first stripped off before tying up.

Before you commence grafting assort the apple roots, those the size of a goose-quill and upwards may be grafted. Those less may be planted in nursery rows in the spring, to be grafted there when large enough, and those quite small should be thrown away. Those selected for grafting should have all their fibrous roots cut off clean, so they will not interfere with grafting; then tied up in bundles of two hundred each and packed away as fast as the work progresses until finished. Then prepare the material for wrapping the grafts in the following manner: Take cotton warp No. 9, which is put up in hanks and bundles of five pounds. Put a hank on a reel and wind loosely on balls of two hanks each—you may use a little paper filling to commence the ball. Then take five pounds of rosin, two pounds of tallow, and twelve ounces of beeswax, or in that proportion. In case beeswax cannot be had, use two parts of rosin to one of tallow. Put all together into an iron pot and place over a slow fire and bring it to a boil. Then drop the cotton balls into the boiling composition as many at a time as will swim—turning them around frequently, so the mixture will boil through them, but as soon as they sink, they should be taken out quickly, one at a time with a fork, let drip, then lay away, and so continue until done. The mixture may be set away carefully for future use. Now procure a short-bladed shoe knife, which is the best to cut the grafts, and a common tin or iron pan about ten inches wide, sixteen inches long and two inches high, to place on your lap to drop the roots and scions into as you cut them off, and then you are ready for work.

Take a bundle or more of roots and wash them clean of sand and earth and let them drip or partially dry; put about fifty at a time into your pan. Then to properly cut them up, hold the root in your left hand, the top from you and the collar of the root (or earth mark) resting on your fore finger. Then make a regular sloping cut from you at the collar about an inch long; then turn the edge of your knife toward you, and make a slit or tongue commencing about one third the length of the slope from the end and draw the knife toward you with the grain about three-eighths of an inch deep, placing your right thumb on the root to guide the cut and protect your left hand in case the knife should slip. Then draw the root forward and cut off short about three inches long, and so continue cutting until the root is too small or finished. When you have several hundred cut in your pan, empty on a table and cover up with a damp cloth. If one person is to do all the work it is best not to cut many roots at one time, before cutting scions and putting them together. You slope the scions and slit or tongue them precisely as the roots by reversing the top and letting it pass under your arm if very long; slope the scions to a thin point so it will easily bend, and open the tongue when putting them together. Cut the scions about four inches long, but if scarce three buds may do. The slope on the scions and roots should be made with a single, true cut, and with practice five to eight thousand can be cut per day.

In putting the grafts together place the roots before you on a table and the scions to the right; pick up the roots with the left and the scions with the right hand, press the point of the scion on the slope of the root so the tongue will open and slip into the tongue of the root and press together tightly so the bark on one side at least does match; then lay on the table on the left side in regular order until done.

To tie the grafts, place the tops toward you on the table and the waxed ball in a box to your

right; take a graft in your left hand with the root from you, hold it tight at the lap next to you, then place the end of the waxed thread under your thumb and give the thread three wraps around the lap, then move it and give three wraps around the other end of the lap and snap or break the thread close to the graft and press the end down and it will stick there. This thread is much cheaper and better than waxed paper or cloth, and the work can be done more expeditiously, neatly and permanently. When grafting is done on a large scale, it is best for each person to do a certain part of the work and all go on together; by that means good, expeditious hands will average about fifteen hundred grafts per day to each hand. Count your grafts after tied, and pack in shoe boxes, which are the best, in damp sawdust well filled in and pressed down with labels across between each variety, and place in the cellar. Very small lots can be wrapped up with the waxed thread and placed in the boxes. It is best to keep a record of the varieties and number in each box for reference. Earth may be used instead of sawdust for packing, but it is not so good and is too heavy to handle easily, and is not so clean and neat. It is best to graft but one variety at a time, then clean up before commencing another to avoid the danger of the varieties mixing.

(*To be Continued.*)

For the Western Pomologist.

The Cabbage Butterfly---A Remedy.

By A. Veitch, New Haven, Ct.

In these days when constant intercourse is kept up between different nations in the interests of commerce, it need not be wondered at, if in consequence. the faunas and floras of countries so related should, every now and again, receive accessions to their numbers in the form of adventurers. Hence it is, the agency of man may be accepted as an important factor in the distribution of species as they now exist both in the animal and the vegetable kingdoms. The mere act of conveyence, however, is not enough to insure the permanent settlement of every species which may be carried to a new country or locality, but depends upon the constitutional adaptations of the one to the physical wants of the other. Want of this fitness has been the cause of death to many which would be regarded with favor could they be successfully introduced, and not a few whose characters for use or show have never been clearly recognized. But we are acquainted with many species which have been tided over barriers they could not of themselves surmount, to find in new quarters abundant means of support, and even greater facilities of increase than they enjoyed in the countries from whence they came. Thus it has been with a numerous class of plants known to the tillers of the ground as *weeds*. Out of her abundance America has given to Europe some of her insects not all harmless, as the Wooly Aphis sufficiently shows; and has received from thence others quite as hurtful to farm and garden productions.

According to reports this is especially true regarding a recently introduced insect known in Europe as the Small Garden or Turnip Butterfly (*Pontia or Pieris Raphæ*). It closely resembles the large Cabbage Butterfly, also of Europe, but is smaller, the expanse of the wings being 2 inches, while that of the other is from 2½ to 3 inches. It is white, the wings tipped and spotted with black. The eggs are laid singly or in pairs on the under side of

MALE BUTTERFLY.

the leaves of cabbages, turnips &c., and the caterpillars which are 1½ inches long are of a velvety appearance, pale green, with a yellow line along the back, and a yellow dotted line on each side. In Europe they sometimes appear in great numbers and prove very destructive. They bore into the hearts of cabbages, instead of merely stripping the leaves, like those of the larger species, and thus are a greater pest, even when comparatively few. The chrysalis is of a pale reddish-brown color, freckled with black; that of the larger species is shining pale green, spotted with black.

Although the last named species is the most common in Europe, and taking one year with another, does the most harm, now since both are established on this continent, this order of things may here be reversed. This assumption is based upon the belief that the relative scarcity of the small ones in some parts of Europe is because the extreme moisture of the climate operates as a check upon its rapid increase; and probably, in this respect, it will be more highly favored over quite a large area of these United States. I know not how much cold the creature is fitted to endure, but this will go far to determine the northern limit of its range across this continent. No doubt other conditions must be taken into account in estimating its probable sweep—such as supplies of food alike suitable for it in the caterpillar state, and as the flaunting butterfly daintily sipping the nectar of flowers. And as the supplies may most readily be obtained in sections where man has shown his hand, and

where he may yet rear homes with their accompanying embellishments of sheltering trees, flowers and vegetables, thither they will resort either in single file or in great armies, as circumstances prove favorable or otherwise. At any rate, the fact that it is naturalized along the eastern border, would seem to indicate that before a great while it will be equally common in the West—a contingency for which it may be well to prepare.

In nature the Ichneumon Fly is one of the great enemies of cabbage caterpillars. Various birds also, of the Finch family assist more or less in keeping them in check; but so far as my observations extend they are of less account than many seem to suppose. Co-workers they certainly are, and we accept each one as assisting to preserve the balance of power in nature, but the great ebbs and flows of insect life seem to run in channels too deep to be much affected by such agencies.

As a remedy for the pest we have seen that the famous Persian Insect Powder has been tried, with what success does not very clearly appear, but if with no better results than I obtained some ten years ago when experimenting with it on Green Fly, it had better be abandoned as a remedy against any noxious insect whatever. Gardeners in Britain have no great trouble in preventing the various cabbage caterpillars from greatly injuring their crops, and the means they employ are neither expensive nor difficult of application. It is simply to water the plants with clear lime water at such times as the insects begin to show themselves. Or it may be as well done before the eggs are hatched. This they regard as a complete remedy; and when lime can not be conveniently got, "even copious supplies of clear water poured on the plants for several evening in succession, will effectually destroy caterpillar in every stage of its growth."

Since writing the above I have seen in "*Nature*" for Dec. 8th, 1870, a report of a meeting of the Institute of Natural Science, Halifax, Nova Scotia, Nov. 14th, J. M. Jones F. L. S., President in the chair, when he, the Chairman, read a paper on the Diurnal Lepidoptera of Nova Scotia. With others, he said the following species were common in the province: "Pieris Oleracea, Harris, P. Rapae, and Boisd." The author dwelt upon the introduction of Pieris Rapae into that part of Canada within the last few years, and alluded to its abundance last summer in the neighborhood of Halifax, where it did an immense amount of damage to the cauliflower crops. He mentioned the probable benefit that would arise from the introduction of the House Sparrow of England (*Pyrgita domestica*) that great enemy of caterpillar life, which would amply repay the trouble and expense of importation. At the present time the caterpillars were almost free from molestation, and it was but proper when possible on the introduction of an insect pest, to introduce its known enemy."

FEMALE BUTTERFLY.

A, CATERPILLAR. B, BUTTERFLY.

Forest Tree Culture.

BY REV. E. GALE, MANHATTAN, KAN.

Read before the Kansas State Horticultural Society, at the Annual Meeting at Manhattan, December, 7, 1870.

Sylva-culture has forced itself upon the attention of thinking men, both in Europe and America, as one of the great practical questions of the age. It is not only a subject of interest to the tiller of the soil, but it demands the consideration of the statesman and physical geographer. And assembling as we do to-day, upon the eastern border of this vast, almos treeless, plain, stretching to the Rocky Mountains on the west, and for a thousand miles north and south, what more appropriate subject can demand our thought? When we take into consideration the vastness of this field, the peculiar fertility of its soil, almost unrivaled, and especially its capacity to resist climatic changes; and that that this whole region is to a large degree destitute of forests, which, if duly supplied, would make it the home of millions, we cannot fail to recognize the fact that we are standing in the very gate-way of the widest and most promising fields of physio-geographical experiment and observation which can be found anywhere in the wide world. We are to realize that through the earnest prosecution of Sylva-culture for this region, it may be made the home of millions of happy and prosperous agriculturists, thereby adding untold treasures to the wealth of the nation, and by its dense population making this great Central Basin the nation's very heart; or by a neglect of this culture, we leave it only to be the transient home of a few cattle herders, an almost dreary waste forever, hence the weakest portion of our great national domain.

In considering the claims of forest culture, we are to remember that vast regions of the Old World, once covered by dense forests and loaded with luxuriant vegetation, are now utterly desolate. We can see in torrent-swept sides of the Appenines, the desolate spurs of the Pyrenees and the barren hills and plains of Asia Minor, and the broken sand-ridges of Northern Africa, what man's wasting hand has done. When we take into account certain great physical facts, we are made to feel that a like ruin may be ours. Forest culture is with us a question of not mere theory, but of imperative necessity. The geologists tell us that we are to find coal only on the eastern line of this vast region. Then we are to look to the planting of forests for fuel, as the first step towards a permanent and dense settlement.

The supply of timber in the older portions of our country is rapidly wasting away; and while the sources of supply are all being exhausted, the demand is constantly increasing. No adequate plans have yet been devised to renew this supply. If this is a matter of grave moment to the whole country, it is especially so to us who, from the very beginning of our settlements, drew all our supplies of timber from distant and rapidly diminishing sources. We may indeed be sure that in these questions of fuel and timber are involved the future interests of all this Western country. In the consideration of this grave question, Shall this vast region be made the home for millions of rich and happy people, gathering about them all the comforts of home, and becoming the great pulsating heart of the nation; or shall we leave it to become the herding ground of a few thousand cattle men? We hear it asserted sometimes, that Kansas is to be the great stock-raising State. While this, to a certain extent may be true, it should be the ambition of every Kansan to make something more than this of his adopted State. While there are few soils, if any, better adapted to the cereals, it is certain that the vine will thrive better here than in many portions of the East. Another conviction may be thoroughly established in the mind of every horticulturist, that this is to be the home of the apple, pear and peach, as well as the vine. Enough has been accomplished to give promise of a future proud pre-eminence in the production of all varieties of fruit. We have only just begun to study the capabilities of Kansas in fruit culture. The western half of the State has hardly had its capabilities tested. It is possible that a few years may teach us some very important lessons in regard to fruit culture, and especially the culture of the pear in Western Kansas.

But the great thought introductory to all this, and without which fruit culture must fail, is the furnishing of fuel, timber and protection. The first idea with the horticulturist is, a *home*. The man who begins to plant fruit trees, has begun to fasten himself to the soil. Though he may be a man of the broadest culture, yet all the energies of his being will be concentrated upon comparatively a small field. But this planting and concentration will never be secured without fuel and timber. It should also be noted that the land, all through this region, which promises in every respect to be the best fruit soil, is always totally destitute of timber. Fruit men in Kansas must become from necessity, sylva-culturists. To succeed in fruit raising, without the planting of forest, is probably out of the question.

But we can scarcely have homes without protection for ourselves, our stock, our fruit trees, and our gardens. It is an act of cruelty to animal life, to dwell on the high prairie without the sheltering protection of trees. It is only at a vast consumption of animal life and food, that men live and rear their herds unprotected upon the prairie. The comfort, quiet, and sometimes even the safety of our homes will depend upon the surroundings of forest. We have all observed the contrast between the still air of the wood and the chilling breeze of the prairie. While there is a real difference of temperature in favor of the forest, the sensible difference is far greater. Even the steam engine indicates, in its loud call for more fuel, the changed condition between the forest and the prairie. How much more will man and beast detect and realize the difference! What is demanded for man and beast is also required for fruit trees. The severe winds of both Summer and Winter should be kept off. The finer and tenderer varieties of fruit must be protected. It is also certain that nearly all the varieties are the better for some protection. If we can succeed in Winter in keeping the temperature only one or two degrees above that of the surrounding atmosphere, we shall sometimes thereby save a crop of fruit. The surrounding winds, also, often do much harm in scalding of the trees; in making the tree unshapely; in shaking off the fruit; and hence, a southern protection is desirable as well as a northern one. A protection on the south, especially if it be made of evergreens, will often delay vegetation in the Spring, much to the advantage of the horticulturist. Hence, the culture of fruit and forests cannot be separated.

But the thought which rises highest, and is really the directing and leading consideration, is the modifying influence which Sylva-culture is to have upon the climate at large; and hence, the influence it is to exert upon the ultimate condition of the soil, and upon the standard of civilization which is to be found in this vast region of coming ages. The great questions of national, social and moral prosperity, are here involved. Are we to rise to

the demands of the age and of the nation, or shall we fall short of it? Are the devastating influences which are already at work, to be stayed? The turbid waters of the Missouri, as they flow on to the Gulf, suggest to every thoughtful beholder many important questions. The silt, which is only another name for the wealth of these great Plains, is moving on, in an unceasing current, to the ocean, varying only from month to month in the relative rapidity of its flow. But why this constant flow of mud? We find the soil, and often the subsoil to a great depth ,scarcely heavier specifically than water, in a state of exceedingly minute division. We find every rain bearing away a portion of this soil, not to come back, like the water in genial showers, but to fill up the bayous, raise the bed of the lower Mississippi, and to extend the coast line of the Gulf. The more this soil is thriftlessly exposed, the more distinctive will be the flow of silt to the ocean. The very capability of our soil only renders it the more perishable. The almost unparalleled minute division of the soil, its porosity, rendering it capable of absorbing water until it becomes like flowing quicksand, subject it to be swept away by every torrent. The general destitution of forests, and the difficulty of renewing the soil when the wild grasses are once destroyed, all suggest the thought that wisdom and peculiar caution are required in dealing with this whole region. We have a land which, in real agricultura wealth may be made to rival the plains of Lombardy; but close feeding and unwise culture may make millions of its acres, in a comparatively short time, utterly waste and past reclaiming.

There are many ways in which forests act in correcting or staying the evils which we contemplate. We find that forests protect the soil from the driving winds; they facilitate absorption, by supplying a vegetable mold which will retain twice its own weight of water; they also keep the soil in a condition to absorb water readily; they serve, by their roots, to retain the soil in place; they modify the climate, by making the Summers cooler and the Winters warmer. It is a fact, worthy of note, that forests will serve to check these floods, which, in open countries, are always to be dreaded, and which, in the Old World, as well as our own, have proved so destructive. They would secure the almost entire absorption of ordinary showers, and also serve to check the too rapid and often dangerous concentration of the water from which torrents originate.

We are led to believe then, that the present and future interest of this vast country lies in the extensive planting of forests. Let trees spring up everywhere. Especially let this be the case in lands which cannot be easily tilled. There are millions of acres that should neither be tilled nor closely pastured. A flock of sheep would soon leave such lands without either grass or soil, and being too rough and steep for continual cultivation they should be covered with forests. There are on almost every farm these rough and unsightly spots —blemishes on the beauty of the landscape—which, if planted to forests would add greatly to the attraction of home and millions to the wealth of the land. This remark only indicates, the point where this work of improvement may begin, not where it should stop.

The great rapidity with which trees grow is a special encouragement in Sylva-culture. Instead of wasting many years for any available results, as many very naturally suppose, very material advantages will accrue in four or five years at the longests. In that time several of the more rapid-growing trees may be thinned out to advantage, if they have been planted thickly with this design. From a few acres of this close-planted forest, the farmer may supply himself with wood, and also with much larger material which will be of great service to him about the farm. The impression obtains to a large degree that he who plants forests plants for his children. While this is literally true, it is also true that the planter may derive almost immediate advantages from his work, provided he enters it with a proper degree of intelligence and care. An investment in trees, judiciously planted, will add many times to their cost to the salable value of any Kansas farm; indeed, it may well be questioned whether there is anywhere a more desirable and certain investment against the contingencies of the future than may be found in a judiciously laid out closely planted forest. How many thousand are anxiously toiling to provide for the demands of old age or for the future want of their families, who after all are really accumulating but little. If they would quietly plant a few acres of timber on such portions of their farms as could, after a time, be sold without detriment to the whole, they would find in the time of need, ten or fifteen years hence, an accumulated fortune, which had required very little thought or care, and proportioned to the wisdom with which the varieties of timber have been selected, and attention given to their early cultivation. This is no mere vision of the enthusiast. It may be regarded as certain that land which to-day is not worth more than five dollars per acre, if wisely planted to forests will, fifteen years hence, realize the owner from two hundred to five hundred dollars per acre. A gentleman whose statement should be good authority upon a point like this, realized in the comparatively wooded State of Ohio, as the result of only fifteen years' growth, eight hundred dollars per acre; and it is not at all improbable that as good results may be realized here, by such persons as may be

shrewd enough to read the signs of the times. Every tree planted is so much money invested, sure to bring ample returns, and he who plants at all will act wisely, if while planting for himself he shall also plant for his more improvident neighbors. It is too much to hope that every farmer will engage in Sylva-culture. Thousands on thousands who have homes in this State to-day, to say nothing of the thousands who are coming, will purchase their wood and timber fifteen years hence. Fence-posts, railroad ties, vineyard stakes by the million, and timber of every kind will always be in demand. We may be sure here is a market that can never be overstocked.

It is perhaps needless to mention the bounty offered by our State Government. While the law has some excellent features, and may serve a good purpose to stimulate tree-planting, the suggestion contained in the law that it will be sufficient to plant trees one rod apart, if followed by the inexperienced tree-planter, will certainly do more harm than the bounty can do good. Then the interdicting of the black locust, probably under the mis-conception that the species of borer which is frequently so destructive upon the locust would infest our fruit trees, is believed by some to be a grave mistake. But this and other matters pertaining to the practical working of the law, it should be known and felt by every Sylva-culturist the real profit in his work is not to be found in a bounty, but in the intrinsic value of the forest, growing out of his care.

It is possible at this time to remark only briefly in relation to the mode of planting. It is of the first importance to secure young trees for forest planting. The first cost will be far less, the expense of planting much less, and the subsequent growth far more uniform and satisfactory.

There are also many considerations which favor *close* planting. We are to keep distinctly in mind the two objects to be reached in the growth of the orchard and forest. In the one case we look for fruit and the other for timber. While the spreading branches and broad top in the orchard is desirable, nothing could be more unfortunate than to raise the forest in the same manner. Unfortunately for Sylva-culture as well as themselves, many persist in doing this very thing. They will proceed somewhat in this manner: Selecting large trees so as to make a display at once, they will, at much expense of time and effort, plant them far enough apart to just cover the letter of the law, say sixteen feet. These trees being large will be seriously checked in their growth, and feeling the full power of the summer's sun, will suffer much more from the borers, and though the trees may not die, they will not by any means make a vigorous and healthy growth. On the other hand, if the trees are small, they are scarcely checked in their growth; and if planted thickly, they soon begin to shade the ground and protect each other, and from these two causes combined the borers do but little or no damage. Again, if the trees are far apart, much labor is required in keeping the ground clear of weeds, while with thickly-planted trees they will cause far less trouble. When trees are far apart we cannot secure length of body, even by the most careful training, but if planted thickly nature will do her own work, securing smooth and straight trunks, with little or no artificial training.

Though much has been said for the few past years in relation to forest culture, yet very little has been actually done. A few pieces of forest have been planted at a trifling cost, which look well, and the small cost at which this work has been done should encourage others to go and do likewise. Probably three dollars per acre would be a fair estimate of expense for labor of man and team in planting ten or twenty acres of forest with twelve hundred and fifty trees per acre, and the expense would be much less than this, if we plant the black walnut, by dropping the seed in the furrow. Then surely there is no good reason why every farmers should not plant one or more acres of forest each year. If every farmer settling upon the high prairies, would each year put out only a small piece of thickly planted forest, even it it were only cottonwood, the whole face of the country would soon undergo a wonderful change, and we might hope that at no very distant day the climate of the whole country would be materially modified.

Terminology of the Vine.

At the late annual meeting of the Illinois State Horticultural Society, the subject of "Terminology" of the vine was brought up, and after much deliberation resulted as follows:

Roots—That part of the vine growing below the surface of the ground.

Stem—The main "stock" below the branches.

Arm—A portion of the vine permanently trained in a horizontal position.

Shoot—Greenwood—This consists of fruit shoots, "young canes" and "suckers."

Lateral—A branch from a shoot.

Cane—A ripened shoot from the stem arm or "spur."

Spur—The cane cut short.

Joint or Node—The enlarged part, whence come buds, leaves or tendrils.

Internode—The parts between the joints.

Tendrils—A twining support.

The Vineyard.

"Mathews' No. 13."

To Prof. James Mathews of the Pomological Department of the Iowa State Agricultural College, belongs the honor of having brought this new grape into notice. We made mention of this new grape some months ago, but as another year's trial has still more clearly established its worth, we feel inclined to refer to it again for the benefit of new subscribers, if nothing more.

There is some mystery about the origin of this grape. Mr. Mathews obtained the original vine (a two-year-old) in the spring of 1862 from Mr. E. S. Rogers, of Salem, Mass., labelled "Rogers' Hybrid No. 13;" but Mr. Rogers evidently, in some way, made a mistake, as this grape is *not* his true "No. 13." It is evidently a chance seedling sent out by Mr. Rogers undetected, as his "No. 13." Still, Mr. Mathews, so far, has thought best to adhere to the original name, "No. 13." the vine received in the spring of 1862, fruited the following season (1863), and has since given an abundant crop annually.

We first ate of the fruit in the fall of 1866, and of the two following crops. Impressed with its excellence, we made a visit to Mr. Mathews' grounds in the season of 1869, to see both vine and fruit. And, though as all know, the most unfavorable season for grapes ever known, when mildew and rot were universal, we found "No. 13," both vine and fruit, entirely exempt from these maladies, while Delaware, standing near by, was a total failure—the vines leafless as in dead of winter, and the fruit hanging withered and sour. And even the Concord, so renowned for its exemption from disease, was much injured by mildew and scab.

The vine is perfectly hardy, standing upon the trellis with no winter protection whatever, nor has either vine or fruit ever shown the slighest indication of mildew, scab or rot. In form and size the illustration upon another page is a perfect likeness of a cluster of "No. 13."

Fruit translucent; color light greenish, with amber tinge in the sun; skin exceedingly thin, and parts freely from the pulp; flavor sprightly, delicious.

Fit Locations for the Grape.

Grapes—Why they are sometimes sour. Requisite conditions to early ripening and sweetness.

R. M. L. complains through the *Country Gentleman* that his Catawba and Isabella grapes are slow in coming to maturity, and that there is a lack of sweetness in the fruit when ripe. A correspondent writing from Poughkeepsie undertakes to explain the difficulty. His reasoning appears to us philosophical and sound; seldom does our eye meet a more sensible article on grape culture.

"Now the difficulty mentioned by your correspondent in regard to ripening grapes, especially those standard varieties the Isabella and Catawba, is a very common one, and I think in many if not in most cases, the trouble arises not solely from improper pruning, or want of pruning, but from a more radical defect, that is the planting of the vine in a soil and position not adapted to its requirements for perfecting its fruit. If the roots of the vine permeate an unfavorable soil or the sun does not have full access to its branches, neither the most elaborate cultivation nor the most skilful pruning will cause it to produce a proper quantity of well ripened fruit. I speak particularly of the Isabella vine.

In my opinion what is first demanded for raising sweet grapes, is a dry, warm soil for the roots of the vine, and a fair exposure to the air and sun for its branches. Experience on this side of the ocean begins to indicate what has been fully taught in the vine-growing regions of Europe; that the best grapes are raised upon the warm and dry uplands; a great quantity of fruit, and large both in berry and bunch, can be obtained upon the lower grounds, but not the finest flavored clusters. There is a great difference between the culture of the vine in Europe and in this country. Our native vines will not bear the rigorous pruning customary there; this would seem to be an additional reason, and of itself a sufficient one for us to prefer the dry, warm soils for raising grapes, for on these there is a less tendency to growth of vine. Our vines have a rampant growth, often so stimulated towards the

close of the season by rain falling on a rich, moist soil, that the vine continues its growth of leaf and branch to the detriment of its fruit, and the advent of frost destroys the leaves before they have performed the office of elaborating the saccharine juices that perfect the grapes. The fruit is consequently sour, and our usual comment upon such unsuccessful results is, the season was not long enough. I would observe, however, that by a dry soil I do not mean a sandy one, nor one of which gravel forms the largest component part. I mean a well drained loam that dries readily both at the surface and in the subsoil; one which does not hold water like a sponge.

If I were to give my opinion as to the best soil and situation for grape vines in our latitude, I should give my preference to a declivity sloping to the southeast or south. As to the soil, I consider best one formed of decomposed slate, with an admixture of clay, and resting at a depth of two or three feet on the slate rock itself. A deep, dark loam, especially if on lower ground, I would never plant upon without a previous preparation of the ground by thorough underdraining; and I would besides have the vines themselves set out in large holes, into which had been previously thrown quantities of broken stone, pieces of brick, old mortar, &c., on purpose to make the ground near the roots as dry as possible. But even with all these precautions in planting, there are spots frequently found in gardens where vines will not mature their fruit; and if these places are open to the sunlight, and the vines with ordinary care, year after year, refuse to bear sweet grapes, the fault is in the soil, and my advice is to plant somewhere else, or cultivate early varieties of grapes. When I first came to the place upon which I now live, I found a number of Catawba and Isabella vines in a fine garden just at the foot of a hill. The ground was in the highest condition, and the whole of it had been trenched. The vines most distant from the hill, and upon the level ground, grew with wonderful luxuriance and produced many grapes, but regularly every fall the fruit was immature and unfit for the table The more on the hill-slope the vines grew, the better the fruit; but still it was only during very favorable seasons I could rely upon them for a good crop. I began to take up my vines in the garden, and made a vineyard still farther up the hill, where in some spots wagon loads of rock had to be removed to make the borders for the vines. It is here I now raise nearly every season, almost without exception, fine Catawbas, Isabella and other varieties of grapes. I attribute my success in a great measure to the dry, open and warm soil of the hillside.

I have Catawba vines in the deep soil of the garden, where it is dry and the exposure is good, but there is too rank a growth of vine and the rot destroys most of the berries. Not so on the shale of the hill, where the soil is only from 12 inches to 18 inches deep. I have there smaller bunches than in the garden, but as sweet as those that are raised in the favored grape regions of the West. * * * * Still it must be acknowledged that we have yet much to learn on this point. There are sites which, although to all appearance are just calculated for grapes, on trial do not make the promise good, and blight, mildew and immaturity disappoint the just expectations of the cultivator. There are climatic influences above ground, and chemical combinations beneath, to be taken into the account; but I have only considered the soil as to its mechanical condition in reference to vine culture.

Ohio Ad Interim Grape Report, 1870.

We have received the "*Convention Report*," in which we find the proceedings of the Fourth Annual meeting of the Ohio State Horticultural Society. Mr. Bateham in his *ad interim* report for 1870, for Western Ohio, says of the grape:

"What grapes shall we plant? is still the unsettled question, as the results this year are as various as ever. The *Catawba* ripened splendidly where the soil and location suited, and there was less rotting than usual; still no one, I think is disposed to plant it anywhere along the Lake Shore east of Cuyahoga county. *Delaware* ripened well, generally and continues popular. *Concord* was not quite as full a crop as usual, but fair and good for home marketing, but no use for shipping. *Hartford* pays well as an early grape. *Iona* bore a full crop as usual where the vines were of sufficient strength, and not overtaxed the previous year; but somehow it does not come up to the expectations of its friends. It is especially contrary about ripening as early and uniformly as a respectable grape should. Some of the vines will ripen the fruit well and in good time, while others, without a seeming reason, hang back and remain greenish until quite late. Still, I regard it as the best of all grapes in quality, and even when not quite ripe, the fruit is very good—especially in warm weather, when there is a taste for refreshing acids. I am in hopes that when the vines attain more strength, and we learn to avoid letting them overbear, the difficulty about ripening will be overcome. The *Rogers* varieties have again shown some tendency to failure of the foliage, though a few of them are quite reliable in most localities.

In regard to soil for grapes, I do not think our sandy ridges along the lake shore are the best, or so good as solid clays—especially clay hills or slopes where the surface water runs off quickly. It is true, there are some good vineyards on flat clay lands where well drained; but I do not think they will succeed as well in the long run as the

hills and slopes; at all events the dryer the better.

CLOVER IN VINEYARD.

At the meetings of this Society in Vermillion last August, I saw and heard much of the use of clover and even weeds among grapes, as a means of preventing disease of the vines; and we found some cultivators excusing their slovenly practice by adopting this theory. It was clearly shown that sowing clover has been in use in some vineyards on flat soils; and my belief is, that the roots of clover were of use in drawing the surplus moisture from the soil about the grapes roots.

INFLUENCE OF TREE ROOTS ON GRAPES.

On the boundary between my vineyard and lawn I have a very large tree of the native *Magnolia accuminata*—the trunk fiftein feet in circumference at the base and eighty feet high, with spreading top, and the roots drawing the moisture from at least an eighth of an acre of land, in summer time. Within this radius are a dozen bearing grape vines, of several varieties, and the fruit of these invariably ripens sooner and better than any other in the vineyard. The soil is a sandy ridge, but seldom really dry for a foot in depth, excepting where the moisture is sucked up by this big tree; and whenever there is a depression and the soil at all moist and rich, there is a liability to rot and mildew. I am half inclined to try cropping with clover.

For the Western Pomologist.

Horticultural Notes from Missouri.

Fickleness of the winter—Peaches gone up—The Clark Raspberry—Influence of water, &c.

By S. Miller, Bluffton, Mo.

Welcome is the first number of the new year! Now hast thou shaped thyself into a nice form, Friend Miller. Now let me congratulate you on the handsome appearance of your journal, in the beginning of the new year. Not only is the thing in *ship shape*, but full of interesting matter.

With such winters as we have here the present one, it is hard for the horticulturist to know what is really hardy or not. One day beautiful sunshine, and so warm that the woodticks are on the move, and grasshoppers skip. Forty-eight hours thereafter eight inches of snow, and the mercury down below zero. Now how are vines and fruit trees to stand this? Our northern neighbors have winter and it stays winter, but here it is both winter and almost summer in the same week. The consequence is, that our peaches are gone up; all the tender and half-hardy grapes, that were left unprotected, are killed to the snow line. Fortunately for them, the ground was covered with snow, and the ground underneath unfrozen at the time of our coldest spell (when the mercury went down to 17 degrees below zero), or I fear many vines would have been killed root and branch. One thing surprises me—that my Clark Raspberry plants, that were killed to the ground two years ago, when not so cold, are now fresh and sound. The fall before they suffered so much, I had dug up all the suckers between the rows, which might have had something to do with their tops being killed. This is, at least, I think, worth noticing, so that others may observe how it affects them.

The Clarks being all dead to the ground that spring, caused me to write an article for a certain journal denying its hardiness; which communication was copied by many others, so that it may have done injustice to that variety as to hardiness. I feel it almost a duty to retract, for now I believe it to be the hardiest of all the foreign* varieties with which I am acquainted, and that has not been a few. In quality it is hardly surpassed by any, productive, of good size, and late, making it a valuable acquisition.

Old settlers here tell me that whenever the temperature gets ten degrees below zero, with the river shut with ice, the peaches are killed in the bud; but that if the river is open, they will come out safe from a still colder atmosphere. Four years ago we had 15 degrees below zero, with the river open, and a full crop of peaches the following summer. This influence is only felt within a half mile to a mile from the river. Out further it makes no difference. When our peaches fail here, we make up for the loss by planting more melons and cantelopes, between which and grapes, we can get along.

But this is only a rambling communication, and is already too long, perhaps.

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* I mean pure foreign blood.

Grapes at Warsaw, Ill., 1870.

The Committee on Grapes of the Warsaw Horticultnral Society, in ther report on the grape crop of 1870, say:

The Catawba seems to have taken the lead this year—setting and perfecting the fruit even better than the Concord. One vineyard, belonging to John Rinkel, of one and a fourth acres and nine hundred vines, made thirteen hundred gallons of wine, or nearly six quarts to each vine.

The Delawares did only tolerably well, and that is as much as could be expected, as the vines lost all their foliage by mildew the year previous, before they had ripened their fruit or wood.

The Iona has done better than ever before, having held its foliage and ripened its fruit. One of the committee has been able to make five gallons of wine from three hundred vines three years old! [*Note by the Secretary.*—The birds are said to have taken two-thirds of the fruit, and the family used them quite freely; two facts certainly expressive of the quality, at least.]

Clintons rotted a good deal in some vineyards, and the fruit did not set as well as usual. They may have suffered from the drouth.

Concords did well, as they always do; and when the shoots were pinched to two bunches the bunches were very large.

The Virginia Seedling perfected a very heavy crop, where the fruit was grown on spurs.

All of Rogers' Hybrids that have been fruited here have given good satisfaction.

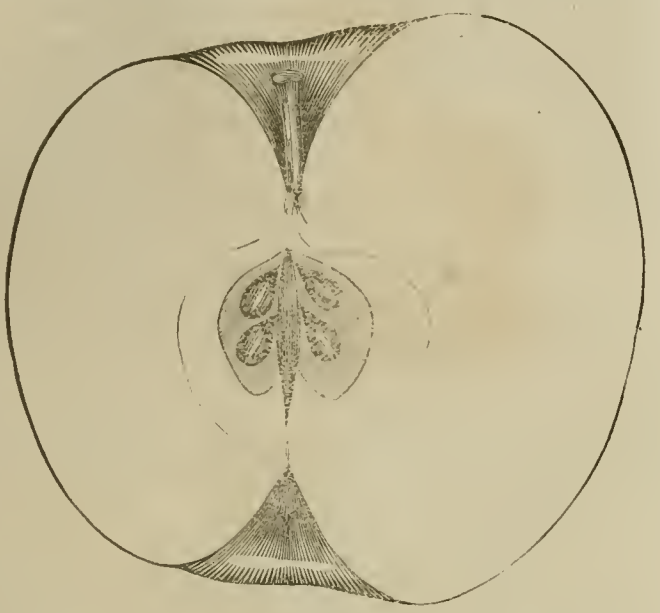
Ives' Seedling did well, and the wine is preferred to the Concord by a good many persons.

MATHEWS' NO. 13.

Kansas Keeper.

By the Associate Editor.

Fruit medium to large; weight from 7 to 12 ounces; form round, conic, oblique angular and sometimes ribbed and oblate conic, lopsided; skin, yellowish green, mixed, striped and splashed with light and dark dull red; dots small and scattered, grey and black; stem, short, rather slender; cavity, wide, deep, irregular, russeted; eye large, open; basin, wide, deep, abrupt, furrowed and ribbed, many specimens distinctly yellow to the eye; core, small, compact; carpels small, long; seeds, small, broad, plump, nearly black; flesh, yellow, crisp, juicy, tender, pleasant, sub-acid; quality good; use market; season, January to June; tree vigorous, very productive and hardy, considered valuable by all who have tried it. Considerably cultivated in Douglass County, Kansas.



Its origin is unknown. We received specimens of Wm. Pardee, Lawrence, also of Dr. Wm. M. Howsley and others. We presented a specimens to Dr. Warder when here—1869, and he said he thought it to be the *Stark*. From what we know of the Stark from the various descriptions, we are inclined to the belief that it is that apple. It is the most variable in shape and form of any apple we have examined, have seen specimens which might pass for the *Pennock*, the variety it was supposed to be by some of our eastern pomologists; but it is very distinct when a number are placed side by side. It is of better quality, the dots much smaller and less distinct, the basin deeper and *yellow very often*, and not subject to bitter rot. This apple is recommended by our State Horticultural Society and called by the above name.

For the Western Pomologist.

The Miner and Wild Goose Plums.

By Geo. Walters, Byron, Ill.

Your worthy correspondent's article on the Miner and Wild Goose Plums in the December issue, is justly entitled to much credit for historical research and the light it throws upon this important subject, and he is deserving best thanks for generously distributing cions of the Miner, and for general interest manifested in this direction.

It appears to be perplexing to satisfactorily locate the origin of the Miner plum, which for the present seems a mooted question. We do not wish to question here, by what right it bears its present name. "When the doctors disagree, who shall be the judges?" Mr. Hinkley merits more than a passing notice for the distinguished part he has taken in this *now* popular plum, and our thanks are also due to others who have labored in this praiseworthy direction.

We presume that the Northern Illinois Horticultural Society considered Mr. Charles Downing very good authority on the "Miner," and no doubt give some credit to our Wisconsin friend (whose name the plum *now* bears) for the part aken in its dissemination, if not for its origin.

Mr. Downing gives the credit of originating this plum to a Mr. Miner of Lancaster, Pa., and describes the tree and fruit as follows: "Branches of the tree smooth and dark-red. Fruit medium, oblong, pointed at apex. Skin dark purplish-red, with a fine bloom. Flesh soft, juicy, vinous; adheres to the stone. Early in October."

There is evidently a mistake in the Wild Goose plum somewhere. The past season I had the pleasure of seeing the Miner and Wild Goose plums growing near each other in the nursery row near Rockford, Ill. The difference in those sorts is so marked, that it does not require much of an expert in such things to see the difference between them. From the fact that while the branches of the "Mi-

ner" are nearly always smooth and dark-red, those of the "Wild Goose" plum are of lighter color, and quite downy, especially near the tips, and the trees are less inclined to branch while young. Those trees were of two summers' growth, and were grown from cions obtained from Wm. Parry, Cinnamonson, New Jersey. Mr. Downing describes the Wild Goose plum as follows: "An improved variety of the Chickasaw, evident from the great vigor of tree and increased size of fruit, which is nearly as large as the Green Gage; skin purplish,with a blue bloom; flesh juicy, sweet, adheres to the stone. Last of July."

Both of these plums show their Chickasaw very plainly.

For the Western Pomologist.

The Peach—Queries Answered.

By David Stewart, M. D. Port Penn, Del.

Mr. J. F. Mauchey:—Your favor of the 19th was received on yesterday. With regard to peach culture, I am in a false position, when my opinions are published for seven reasons, and on that account I shrink from notoriety.

1st. On account of my remarkable success in the midst of many ruinous and total failures of the best of what are called "*practical farmers.*" If I tell the truth and assure you that I believe it a *risky* speculation, the public will suspect that I do not want competition, and therefore discourage others.

2d. On the other hand, if I tell the truth, and attribute the almost universal failure to the fact that *specific* peach food is required, the public will take that with a grain of salt, and snub me for my advice.

3d. The bulk of peach-growers who have asked my advice criticise my radical theories as directly opposed to the custom of others who have blundered into success by accident, sometimes adopt some *part* of my advice, and hold me responsible for the failure that results and which I could predict.

4th. The want of capital creates an objection to my plan, which not one in ten will admit is the real difficulty, and thus make a false issue, or objection.

5th. It is not agreeable to be suspected of some selfish motive, such as the speculation in land, without I have some land for sale, which is not the case; nor have I any interest in any such speculation.

6th. During nearly a quarter of a century I have gratuitously contributed to agricultural* literature, and by the most exact and laborious experiments verified my assertions, making many rich while I have not fattened on the public. But I now find not only that my thunder is stolen, but that other "*writers*" seem to take a delight in appropriating it to *others!*

7th. In attributing to wood ashes peculiar virtues as plant food for peach trees, I do not assume, as all others do, that Potash is the only *essential* element of the ashes of wood, but that there are other elements not usually recognized or appreciated in wood ashes *necessary* to co-operate, and without which the potash element fails partially or entirely, and will not pay on an average.

It would be quite as absurd to extol the gluten or gelatine as a substitute for wheat flour as a food for man, or starch or sugar (which are virtually the same) as a substitute for corn, oats and hay as a food for the horse. It is perfectly annoying to me that so many modern quid nuncs swallow such nonsense, and that some of our best agricultural journals foster it—for these seven reasons I write for a Western Pomological Journal published at Des Moines, Iowa, where I have no interest, and will send you a copy.

With regard to "*others*" within my knowledge—"first cost of land, product, &c.,"—I must refer you to the fact that only one or two others have had three successive crops, and they have been published most industriously east and west as the only success. Consequently, as I have only one hundred acres in peaches, and do not wish to rob others of this sort of thunder, I will only remark that the rent of *all* of this farm derived by the best practical farmers in Delaware, would not average the rent of my house in Baltimore for many years; but the half of it has yielded *me* three successive crops, aggregating $14,000—or say seven thousand dollars this year, planted in 1865-6 and 7.

* See American Farmer, 1850, &c.—especially March, 1855.

For The Western Pomologist.

Oregon Horticultural Notes No. 3.

By A. R. Shipley, Oswego, O., Dec. 18, 1870.

We are having a little touch of winter. The thermometer went down to 18 degrees above zero last night; at this writing, 9 P. M., it is 23 degrees above. The wind is blowing pretty keenly from the north east and the indications are that we shall have a little snow. The weather for the week past has been perfectly delightful, freezing a little at night, but thawing out during the day, with cloudless skies and pure, bracing air. The season has been favorable for work in the horticultural department. I finished planting grape-cuttings yesterday. My experience is that the fall is the best time to perform that operation, the ground never freezing hard enough to heave them. During a residence of 18 years I have never seen the thermometer below zero. I have planted trees during every month of the winter. We made and planted our present flower-garden during the first and second weeks of February. We have frequently had many flowers in bloom in the open ground during

every month in the year. Most of the more tender roses such as hybrid perpetuals, withstand our winters without protection. But taking up my fruit record where I dropped it in my first communication I will now speak of the Plum.

The crop this year was about an average, in quantity. In quality excellent as usual. The plum tree as a general rule proves perfectly healthy in Oregon, and is very productive, rarely failing of a crop. The curculio is unknown here, and nothing troubles the fruit except the birds and yellow-jackets. The plum is so easily and abundantly raised that it sells quite low, bringing this year from 2 to 8 cents per ℔. Of late years a great many plums are dried and the quantity is rapidly increasing. We are now planting mostly those kinds which are best adapted to that purpose, such as the Peach Plum, Columbia, Coe's Golden Drop, Bradshaw, Washington, and the German and Italian prunes. They are all of large size and most of them part freely from the stone. About a mile above Oswego on the west bank of the Willamette river, is situated the largest plum orchard in Oregon. It contains over 1500 trees, 1000 of them Peach Plum. The proprietors, G. W. Walling & Co., formerly marketed the product of this orchard in a fresh state, but now they dry most of the fruit. Years ago it was not uncommon for them to receive $80 for the fruit of a single tree of the Peach Plum variety. The fruit being very early, very large, very handsome and often brought 25 to 30 cents per ℔. Messrs. Walling & Co. also have large Pear and Cherry orchards as well as one of the most extensive nurseries in the State—their specialities being the Plum and Cherry. Their Cherry trees of this season's growth, in size, beauty and uniformity exceed anything of the kind I ever saw. The Peach is variable and uncertain in this country—sometimes doing well and at others proving an utter failure. Sometimes the trees are affected with the leaf-curl, and sometimes they die outright without any apparent cause, and then again they will be healthy for a few years and bear fine crops of excellent fruit. This year we had a medium crop of the finest quality. I never saw finer Crawfords in my life than were brought to the Portland market this season. The crop brought to the producers from 5 to 12 cents per pound, and was retailed at 10 to 25 Wishing you and your readers a merry Christmas and happy New Year, I subside for the present.

For the Western Pomologist.

Sheperdia, or Buffalo Berry.

By Joseph L. Budd, Shellsburg, Iowa.

The Buffalo Berry (*Sheperdia Argentea*) is a native fruit of the Northwest, in quality almost equal to the Huckleberry. The shrub is hardy, very ornamental, and bears good crops of really delicious, mildly acid fruit. Its leaves are oblong, silvery white on both sides, borne on dullish white branches with many thorn-like branchlets. When only a single stem is allowed to grow from the roots, it soon develops into a small tree eight to ten feet high. Upon the lawn, such a little tree covered with its shining white leaves, amid which are clustered masses of red fruit, as an ornament is hardly surpassed. Were such a beautiful shrub, bearing such fine fruit, imported from China or some other far distant country, and sold at five dollars each, it would be far more common in our yards than now. In the garden as a fruit, in the yard for ornament, in the hedge-row for *fruit, ornament and use combined*, the Shepherdia is bound to become well and favorably known. While it will not become strong enough for a field hedge, for low, well kept yard hedges, combining ornament and use it has no superior among our hardy plants.

SECTION OF BRANCH AND FRUIT.

When the Shepherdia is grown from seed it will be found to bear better in hedge than when in isolated positions. Being dicœcious in flowers the staminate and pistillate plants are in hedge intermingled. If fruit is wanted, as grown upon the lawn, care must be taken to plant both staminate and pistillate plants. In nursery the plants flower when about three years old, when every plant can be soon marked. The male plants have flowers with a four-parted calyx and eight stamens. The fertile plants have flowers without stamens, with urn shaped calyx enclosing only the ovary that develops into the berry. To prevent mistake, we will state that in the northern United States, is found a species of Shepherdia with ovate leaves, green above and whitish and downy beneath. This species is a straggling shrub neither ornamental or useful, fruit worthless. The right kind may be known by its silvery-white leaves, and is kept for sale in many of our nurseries.

Pitmaston Duchess D'Angouleme.

In September last, Mr. F. R. Elliott, of Cleveland, Ohio, received specimens of this new pear from Mr. John Saul, Washington, D. C., and which Mr. E. thinks is the first fruiting of this new pear in this country, and says of it in the *Rural New Yorker:*

The variety is recorded as having been raised by the late John Williams of Pitmaston, England, from seed gathered from a Duchess D'Angouleme, crossed with Glout Morceau, and is set down in the English publications as ripening late in October or early in November.

The drouth and heat of the present season has doubtless brought it forward earlier than usual; but it must be remembered that pears at Washington, or in Southern Illinois, ripen a month or so earlier than at Boston or Rochester, so that in ordinary seasons we may look for this new and promising variety to ripen from the middle of September to the middle of October. In appearance the pear bears little or no resemblance to the Duchess D'Angouleme, being oblong, obovate, acute pyriform, of large size, with surface slightly undulating; color a pale yellow, mottled, dotted, and marbled with thin cinnamon-colored russet, becoming thick and connected around the base of the stem and calyx. The stem is pretty stout, curved, about an inch long, set in a slight oblique cavity. The calyx is large and open, with erect, half-reflexed, separated segment; basin is slightly furrowed, broad, open, and pretty deep. The flesh is whitish, moderately fine grained, with some yellow granules next the core; buttery rich, sweet, juicy, sprightly; almost, if not quite, *best*, according to pomological rules. The core is pretty large and seeds imperfect.

The Beurre D'Anjou Pear.

Hon. Marshall P. Wilder, thus writes to the *Country Gentleman:* Its merits increase in my estimation every year. In fact, its use extends over many months. It may be ripened in October by being placed in a temperature of 60 degrees, or it may be to this date, (Feb. 19th,) in perfection, no other conditions being necessary than those of a cool, dry, north cellar, free from frost. Such also is the opinion of Messrs. Ellwanger & Barry, who have just visited me, who also had them in fine order when they left home a few days since.—Whether for my own table or for market, I have no variety that surpasses it, if size and excellence are considered; and so generally is it now sought for both in this market and New York, that my crop is always engaged before the time for gathering. The d'Anjou sells in New York readily for twenty-five dollars per barrel, as they come from the trees without selection, and in Boston at this time commands twelve dollars a box of less than a bushel—and excellent and refreshing as the Easter Beurres are from California, my Anjous are in as perfect condition and have kept as well as those.

Large Pear.—The Boston Cultivator of January 14, says a Belle Angevine Pear from the orchard of A. P. Smith & Co., Sacramento, Cal., is on exhibition at the Library room of the Mass. Hort. Society, Boston, that weighed, when picked, 4¾ pounds, a few ounces more than one grown here a few years ago. It is a monster in size, and was sent to Col. Marshall P. Wilder, who put it on exhibition.

Wells still continue dry, or nearly so, in many locaties, as informed.

Pear Culture---Soil and Manure---Trees in Grass.

We glean the following remarks on pear culture from an essay on the subject read before the Pennsylvania Fruit Growers' Society at their January meeting:

"In regard to the kind of soil and cultivation most suitable for pears, I have only to say that the results of my observation and experience are all favorable to "high culture." I mean by that, bountiful manuring and constant tilling of the soil. I have no consolation to offer to those who expect to grow good crops of pears in a grass sod. But I do not propose to urgue the question; it is one that has been already sufficiently discussed, and can be determined only by actual experiment. As it would seem proper, however, to give the results of my own experience, I will state that I give my trees, as a general rule, a good manuring annually, with stable or barnyard manure, and cultivate by plowing alternately, to and from the trees with a light plow. My trees, that have been so treated, have thus far generally produced satisfactory crops. It is proper for me to state, that I have but few trees that have been planted more than ten or twelve years, which is not time enough to establish my theory conclusively, and it may be that old trees will not do with this kind of treatment. All that I can say, at present, about it is, that the older they get the better they seem to flourish.

I would not be understood as contending that pears will never do well in a sod; on the contrary, I have seen many old and thrifty pear trees bearing valuable crops of fruit, that stood in grass, or in situations where they could not be cultivated; but these have always been in peculiarly favorable situations; often near the farm buildings, where the drainage from the barn-yard or kitchen found their way, sometimes in city yards, where the roots can seek out rich spots under the pavements of gutters and among sewers and foundation walls, and it must be borne in mind that the roots of an old tree run for hundreds of feet, where they find a congenial soil. Pear trees in such situations will often thrive and bear good crops in spite of the grass; but I have yet to see the first pear orchard in grass that was thrifty or productive.

It is unreasonable to expect that a tree standing for generations in one spot, can continue to draw from the same soil, year after year, the ingredients requisite for a large crop of such high-flavored and delicious fruit as a fine variety of pear, unless the soil happens to be of inexhaustible fertility, or has its supply of plant food in some way frequently renewed. It is easy to imagine a tree, (like a pine, for instance) that produces no edible fruit, to thrive and continue to grow for centuries in a soil almost destitute of fertility; but food-producing plants require a soil containing an abundance of vegetable matter, or some form of plant food. Fruit trees, I believe, require to be fed as much as domestic animals; everybody knows that. If you would have your dairy cows, for instance, to yield abundantly, you must supply them with a liberal amount of nutritious food; and I believe this is just as necessary for pear trees. I have been speaking now of moderate natural fertility, such as the average soils of Pennsylvania or New Jersey. Of course, the same amount of manuring will not be necessary in deep allluvial or otherwise unusually fertile soils.

The question is frequently asked, whether a stiff clay soil, or a very light sandy soil, is suitable for pears. I cannot answer these questions, but am inclined to the opinion that almost any soil that is not two wet will do, it made sufficiently fertile by manuring."

For The Western Pomologist.

Fruit Culture in Georgia--What we Want.

By A. C. Cook, Covington, Ga.

We have a list of apples here at the South that succeed well in the hill and mountain regions of North and South Carolina, Georgia, and Alabama. Northern summer apples do well in nearly all southern localities. The apple is seldom injured by frost here in Central Georgia, but on low ground the peach is often cut off from this cause—more so than any other fruit, except the apricot. On high ground the peach never fails on account of late spring frost; the South is the home of this delicious fruit. We have a regular succession of varieties in season from June to November, yet as a general thing hitherto, but little attention has been paid to raising fruit here of any kind; it's cotton *all* the time, and cotton only; but a change is going on, and ere long this part of the country will show pomologically. The pear succeeds admirably on well drained, calcareous soils. Duchess d'Angouleme, Flemish Beauty and other leading sorts do well. Hebe, a pear that originated in South Carolina, is quite popular. To attain the best results in pear culture here, both mulch and manure must be used. Good pears bring a good price in all our southern cities, and in these days of expedition in transportation may be sent into the eastern and western markets at a great profit to the producer.

Figs do well from Texas to North Carolina, and in favorable situations—on the south side of buildings or high brick walls, I have seen them growing as far north as Richmond, Va. The cold of zero will kill the tree dead to the ground; it will, however, sprout up from the roots and form a bearing tree again in two or three years. We have the fruit from the latter part of June to November. The fig tree will stand more hard usage and neglect than

any other fruit tree I know of. It will give liberal crops of fruit with scarcely any care or attention of any kind—cultivation, manuring, pruning, or anything else. It as readily propagates from slips or cuttings as the Concord grape or any kind of plant. The fruit on a tree does not all ripen at once; ripe fruit and fruit buds just opening may be seen at the same time on a single tree. The fig tree has no blossom, the embryo fruit pushes right out.

Cherries do well in hilly or mountainous sections, but are of not much account near the coast. Plums are indigenous to the South and grow wild in great abundance, the fruit varying in size, color and quality—some of the fruit excellent. The Lombard and Wild Goose generally produce big crops. Two years ago I found a white plum of very fine flavor. It is a seedling from the old Black Mogul and ripens some five weeks later than the parent; also a red seedling from the same and ripening about two weeks earlier. I intend the coming season to work buds of these new seedlings on to Chickasaw stocks and also on the peach stock. The Chickasaw fruit has never as yet, about here, been touched by the curculio. In favorable seasons they may be gathered on almost every plantation by the wagon load.

Grapes are a success here wherever put on the right kind of soil and duly attended to. Most of Middle Georgia has a soil made up of sandy loam resting upon a red fine clay subsoil, and containing considerable potash with little lime. Most of the *Æstivalis* family of grapes are indigenous to the Southern States. The Warren, or Herbemont was found growing wild in Georgia and South Carolina. It is a fair wine grape and one of the most prolific in fruit. Black July, Pauline, Blue Favorite, Arkansas and Louisiana are all of this family.

Of peaches, Tillotson ripens here early in July, Hale's Early about the 20th of June, Bartlett pear first of August, early grapes middle of July, strawberries and raspberries in May, blackberries and cherries in June, plums May into June. Our peach season is right along from about the 20th of June into November.

The advantages of Central Georgia for raising fruit and garden truck are manifold—suitable and cheap lands, climate salubrious and healthy, the best of water power, schools convenient and good, churches of different denominations, good society, and unsurpassed facilities in the line of transportation in all directions. In addition to our present railroad facilities, we expect to soon have an air line railroad from Atlanta *via.* this place, surveys are being made for other lines of railway all centering at this place. Good fruit lands adjoining my place may be bought for ten dollars per acre.

To fully develop this section of country we need energetic and experienced men to incite emulation and inaugurate diversified agriculture. The South, as a people are wedded to cotton, and until we engage in diversified industries we shall ever be mere hewers of wood and slaves to those who may furnish us with the products of the soil, such as we can and ought to produce at less cost. We need live business men, labor, capital and intelligent experts in various industries.

For the Western Pomologist.

Apples in Northern Wisconsin.

By J. W. Clarke, Green Lake, Wis.

The strawberry crop last year on the south shore of Lake Puckaway at Marquette, was good; and a large surplus was shipped to Ripon, where I met P. Mason, a few days ago, when he showed me large specimens of Ben Davis apples of good second rate quality.

Our apples here, the soil being lighter than at Ripon, were somewhat smaller. But the Bellflowers were of good size, about half a crop, and not so wormy as some others. Tallman Sweet was very wormy. Golden Russets were a quarter crop only or less. Westfield Seek-no-further two thirds a full crop, and not very wormy. Swaar a good crop for poor trees. The tree is tender, and will soon disappear from this vicinity. Newtown Pippin did not bear this year. It is a splendid fruit and a good keeper, though a little spotted. Last year I had two barrels from three small trees. Red Spitzenberg did better this year than last, giving half a crop. Snow or Fameuse half a crop. Early Harvest and Primate a fair crop on the few trees we have.

In an orchard near me, Wine Saps bore well last summer. I got a few specimens of twenty oz. Pippins at same place that appear to be adapted to this climate.

The drouth last spring played havoc amongst the new stock in the nursery, leaving only a moiety or less for our use. I have two young orchards one just started, another that will soon begin to bear. The latter is largely Bellflower and Golden Russet, with a few Red Astrachan, Perry Russet, Sops of Wine, &c. Two year nursery trees not injured this winter yet; Ben Davis, Snow, Duchess, Perry Russet-Jonathan, Sops of Wine, Raules' Jannett, Red Astrachan, Wine Sap, etc., are doing well. Willow Twig and Roman Stem a little tender. But this may be in consequence of the scions coming from several hundred miles south.

Early Richmond Cherry is growing finely on Mahaleb. I wish Mr. Matthews would state whether they ought be cut back to keep them small enough for netting and induce bearing.

What will perhaps surprise you is the fact that R. I. Greening is doing well here. The stems were tender when young, but when they attain good size, the tops are not more tender than poorer sorts, and the trees bear well for their size, the apples keeping well.

For the Western Pomologist.

Raising New Seedling Fruits.

By A. M. Burns, Manhattan, Kan.

I do not favor the distribution of new seedlings, unless to test in different localities; but I am in favor of trying to originate better varieties of all kinds of fruit than we have, and when thoroughly tested for years, if found an acquisition and so pronounced by intelligent horticulturists, then it may be proper to disseminate it. Let every one plan seedlings for their own use, and in so doing learn whether any would be worth multiplying.

My plan is this:—I have a bluff on which there are several acres of unoccepied land. It is covered with prairie grass, and some of it is too stony to run a plow. I have several hundred seedling blackberries, from seeds obtained ten or twelve years ago. I planted a tea-cup of seeds in the woods, as I had no ground then prepared. I have never been able to test the fruit fairly, as the berries are always taken by birds before ripe. I intend to dig holes on this bluff, which is of very rich soil, and plant these *wild* blackberry roots, and mulch the ground so as retain the moisture, and kill the prairie grass. I do not expect to realize as much money from these seedlings as I would if I planted some well known variety, but I expect to make enough if not more, than will defray all expense, and at the same time have an opportunity of knowing whether any of them possess merits over the cultivated varieties. If any out of the hundreds prove superior in quality, productiveness and hardiness after some years of trial, then the number can be increased. I notice that some of these seedlings are earlier than the Wilson, although the sun never strikes them, yet their quality, productiveness and hardiness cannot be known until they are grown under more favorable circumstances than when continually in the shade. I recollect that some luscious wild blackberries were produced in Pennsylvania, and these are seedlings from them, and when transferred to a richer soil and warmer climate than where their parent stock was grown, some qualities may be developed that were unknown to the original ones.

Now, how many readers of the Western Pomologist, like myself, have some ground that could be devoted to testing blackberries and other small fruits? The fruit, especially where fruit is scarce, will pay for the labor of planting and cultivation, so that nothing is lost, while the result *might* be great gain to the country as well as to the experimenter. The larger the number of roots planted the greater will the chance be for success. There is no man owning five acres of ground who could not try half a dozen of several species of fruit, while thousands could experiment with hundreds. No man could be less successful than myself. I have planted thousands of seeds the last fourteen years and have produced but a single plant that I considered worthy of sending out to have tested in different localities. It is a raspberry, which is earlier, sweeter and more juicy than the Doolittle. It is on the north side of a hill and shaded a portion of the day, has never been killed by frost. I have not fruited it along side of the Doolittle in an open exposure where it might have sunshine all day, but expect to do so soon. It may then prove entirely worthless, but in its present location I consider it worth multiplying. Now, cannot some others who have never thought of the subject before, plant some seeds and experiment. It is an interesting employment, and may result in great good.

I have no doubt but that in places where "wild" blackberry canes are numerous, hundreds, or at least dozens of the wild ones would, under cultivation, prove as hardy, more luscious, and as prolific as many of the well known cultivated varieties do at the present time.

Those who have had no experience in testing blackberries should understand that some of the "wild blackberry" plants, when transplanted and cultivated may bear well for a few years and give satisfaction as to quality and productiveness, and then deteriorate—at least such has been my experience, and therefore should not be disseminated until after years of trial. It is for this reason that I think the Kansas State Horticultural Society acted hastily in rejecting the Lawton. I have no doubt but that the Kittatinny will succeed, yet we have not had sufficient experience with it to justify us in rejecting it so soon. In rejecting the Kirtland raspberry I think the same Society was too hasty. It should have been put on the list for trial until the members had some experience with it. It is with me an excellent fruit, although I have not had it very long in bearing. So well pleased with it am I, that my plants for a few years will increase as fast as I can make them.

The Hawthornden Apple.

Ed. Pomologist: Allow me to ask why, among all the apple talk in the Pomologist, and in the horticultural meetings, nothing is said about the Hawthornden. My experience is that no other variety is better suited, or more valuable for new beginners of orchards. It is a fine apple, a little below medium in size, pretty sharp acid, good for cooking. Tree bears very young and full—not excelled in this respect, I think, by any other apple tree. I believe it stands first of all for bearing young. Those who plant trees—new beginners in particular—are anxious to have returns in the line of fruit. I have what may be called a good sized orchard, and for early bearing and good crops the Hawthornden stands number one. You talk of the Wagner, Ben

Davis, Kirkbridge, and so on, as early bearers. And in the January number of the Pomologist Mr Adams comes with the Tetofski.

T. S., *Kenosha, Wis.*

Remarks.—What T. S. says of the Hawthornden is true. One objection to it is, the fruit is rather small, and has more acid than most people like. It does very well for cooking, but for eating from the hand we should prefer almost any other apple of fair quality. In a new country, where apples are scarce, it, with others, will do to start with—in fact, rather desirable.

For the Western Pomologist.

Russian Apples.

By S. J. Parker, M.D., Ithica, N. Y.

The Department of Agriculture has distributed in the Northwest quite extensively cions of Russian apples. The leaf of these is quite peculiar, the apples early, and the flavor is remarkably sprightly. It seems to open a new world in the apple line; and I call attention to the debt those who have received them owe to fruit culture to improve by them our choice natives. This will, in the main, be done by taking the pollen of the Russian, and crossing on the pistils of our natives;—enclosing the flower operated on in a cotton cloth bag until the cross is made. I would like to see the Tompkins County King, that great and hardy apple, which originated within a mile and a half of where I am now writing, crossed by at least five varieties of Russian pollen; I predict an apple such as we have not yet in America from it. We should bear in mind that Northern Persia, Astrachan, and Northwestern India, are in reach of Russia, and that of all the native homes of fruit, none equal that comparatively little visited region. So, too, we should bear in mind that foreigners, whether men or plants, are not as desirable citizens as natives, and if we allow the foreign influence, it is in the cross, not in the unmixed type, that we gain.

I hope some day the Caucasian, and especially that great midland region just east of the Caucasus, as well as Russia, well give us these new germs of fruits. Certainly these cions are one of the best importations of late years. Fruit growers, go to work and use them.

New Apples and Pears at the East.

At the late meeting of the Western New York Horticultural Society, Mr. Chas. Downing reported several new varieties of apples, as follows:

Rose Red, an apple received from N. P. Aldrich, of Egypt, Monroe Co., N. Y., the tree a strong grower and abundant bearer, beginning to ripen early in autumn—medium in size, oblate, striped with red, often quite dark next the sun, tender, juicy, and with a refreshing flavor. *Sedgwick*, from Centreville, Indiana, a large apple, roundish oblate, entirely covered with deep red, flesh yellowish, a little coarse, tender, juicy, sub-acid, rich, of good or very good quality. *Tuttle*, an apple from P. S. Beers, of Cheshire, Conn., tree a handsome upright grower and good bearer, medium in size, conic-oblate, striped, flesh fine, tender, juicy, pleasant sub-acid, quality very good, ripens December to April. *Tuttle of Geneva*, medium in size, roundish oblate, pale yellow, flesh fine, white, tender, pleasant, sub-acid, quality very good. *Schuyler's Sweet*, a large showy, yellow, sweet apple, from Renssalaer Schuyler, of Seneca Falls, N. Y., the tree in growth resembling the Baldwin—quality good or very good, ripening in October. A seedling of the Northern Spy fertilized with Wagner, was received from Charles Arnold, of Paris, Canada, the fruit resembling Wagner. *Bailey's Crimson Crab*, raised by W. H. Bailey, of Plattsburgh, N. Y., is very large, handsome, bright rich crimson—tree vigorous, upright, and very productive. The *Eastern Belle* pear, raised by James McLaughlin, Maine, size medium, pyriform, pale yellow, slightly russeted, flesh half melting, juicy, sweet, rich, and with a slight musky perfume—quality very good. Rogers' or Dean's Seedling pear, from Roxbury, Mass., tree upright, productive, size medium, obtuse pyriform, flesh half melting, sweet—quality very good. Among new *peaches* from T. Rivers of Sawbridgeworth, England, Rivers' Early Albert and Early Alfred, have fruited and proved excellent in quality.

The Tetofski—Where I Found It.

Ed. Western Pomologist:—My experience with Tetofski has been about ten years. I was first made acquainted with it by Chas. Gifford, of Milwaukee, as Russian Crab. I thought but little of it, as at that time I was somewhat prejudiced against all crabs. But I propagated a few to keep up an assortment of fruit, until at length trees that I had sold came into bearing in the neighborhood, and produced a tremendous excitement from the beauty of the fruit, the evident hardy quality of the tree, and its prolific habit of bearing.

The fruit is the first to ripen, most excellent for eating from the hand, and sells at high figures in the market. The trees come into bearing quite young, need and must have rich soil, and be kept clean from grass and weeds to do well. If the soil is not naturally rich it must be made so by manure. You may keep it up. The fruit must be handled lively when ripe, as it is soon on the decay. I find the Tetofski doing well far north of this, and its extreme hardy qualities no longer in doubt.

Beaver Dam, Wis. I. Gould.

The Vegetable and Flower Garden.

Asparagus—How to Grow It.

Most farmers, and even those who pride themselves on having a good garden, appear to think there is some mystery about raising asparagus, understood only by professional gardeners and amateur fruit growers—that it is attended with much difficulty and labor. Many writers for agricultural and horticultural journals, have so mystified the subject, that thousands are detered from planting this early and delicious vegetable. In their long, prosy disertations we read about soil, aspect, digging deep pits, removal of subsoil, about old bones, shoes, boots, salt, etc., as indispensables in the preparation of an asparagus bed; when, in fact, the culture of no garden vegetable is more simple or attended with less labor. Any dry, well drained soil of sufficient fertility to produce a first class crop of corn or potatoes, will do for asparagus. We have *one* bed planted with two year old roots in 1865. The preparation of the bed consisted only in spading up the soil to the depth of eight or ten inches, setting the plant about two feet apart with the crown about four inches below the surface. The only care or labor given to it since, has been to keep the weeds out by hand-pulling and cleaning off the old stocks in the fall—no manuring or disturbing of the soil in any way. From this bed we have annually cut very fair crops. It will pay well to put more labor into the culture of this plant than we have given it; but we wish to show how easily every farmer's family may enjoy an abundance of this luxury, and without going through the needless rotine of manipulations taught by those who do more gardening on paper than in the field.

Now, for an asparagus bed made in the best possible manner, select the richest, warmest, and most sunny spot in the garden, spade up one to two feet deep, make it rich with a compost of the strongest well rotted manure and wood ashes, in the proportion of about one bushel of ashes to twenty of manure. Two year old roots are more profitable to start with than seed, or roots of any other age. If roots are used, and space is limited, as in a small garden, set one foot apart with the crowns three or four inches deep, and if manure is handy, finish up by giving the surface of the bed a dressing of an inch or two. Keep clear of weeds by hand-pulling; annually, late in the fall, clear off the old stalks and spread rather coarse manure over the bed three or four inches deep with a sprinkling of ashes. Early in the spring loosen up the manure and work it into the soil slightly. A bed thus made and managed will produce annual crops without deterioration for a generation or more. A sandy loam is the best for asparagus, but almost any kind of soil will do if rightly prepared. Good drainage and full exposure to the sun is all important. The bed should not be located where any surface water will stand for any length of time. Asparagus to be of the best quality, like the radish, must have a quick growth.

If it is desired to commence with seed, sow in rows one foot apart and cover an inch or two deep. When the plants are fairly established, thin out to the distance mentioned for setting roots. It is said that a dressing of salt, at the rate of two or three pounds to thirty or forty square feet early in the spring stimulates growth, but we have no great faith in such an application. For field culture, or where there is plenty of room, plant two or three feet apart.

Among the most popular sorts of asparagus are Lusher's Mammoth, Conover's Colossal and Moore's Premium. The latter takes precedence in the Boston market.

For the Western Pomologist.

Botany for Farmers and Gardeners.

By Prof. C. E. Bessey, Iowa Agricultural College.

Friend Miller: The little article in last month's number of the Pomologist on the study of botany induces me to write something at greater length, in favor of that most delightful of all studies. But a few years ago it was thought by the great majority that botany was only fitted for school girls, or what to many seemed little better, the naturalist. With the rise and advance of practical education, however, the idea has in a great measure given way, and now in our industrial colleges, botany stands among the foremost of the natural sciences. This is as it should be, for surely no other science has a greater practical bearing upon the business of the

farmer and the gardener. So important is it to these two pursuits, that I do not hesitate recommending every farmer and gardener even now to study the subject. Let me tell you how I would have it done.

Professor Gray has written in simple language a little work just adapted to the wants of the common people. It is called "Gray's School and Field-book of Botany," and costs from two and a half to three dollars. It is written in two parts—the first of which is devoted to such topics as the names of particular parts of plants; how plants grow; how seeds are formed, and how they germinate; fertilization; internal structure of plants; relations of plants, etc., etc.; while the second part gives in the order of their relationship, a description of all our cultivated plants, along with the greater part of those which grow wild in our forests, and on our prairies. Both the scientific and common names are given, and while in the whole make up of the the book, technical terms are but little used, it is still a reliable, scientific work, fully up to the times. This book I would advise every gardener and farmer to get. I choose this one because its author is the foremost of American botanists, and he has in this work more nearly met the wants of the masses than any other author with whose works I am acquainted. The book if carefully read will enable any one to hunt up the name of a new plant, whether wild or cultivated, which may chance to be of interest.

Now, then, for some of the advantages which the gardener might expect to reap for his pains. Among these, the first is—it would enable him to grow plants better. Not that a man can be a successful farmer or gardener just because of his knowledge of botany, but of two men *otherwise equal*, the one who understands botany will, and must succeed best. This follows as a matter of course, for botany teaches us how plants grow, what they feed on, and how they take their food, and surely he who knows this must be able to provide better for his plants than he who is ignorant of it. Again, such a study would enable the gardener to express in precise terms everything relating to the description of plants and fruits. That there is need of improvement here need not be argued. An attendance upon any of the meetings where discussions upon the plants of the farm or garden arise, will soon reveal the fact that we lack *terms* to express understandingly what we mean. And further, a knowledge of botany would aid the gardener to make more experiments with a reasonable degree of success. Teaching as it does the affinities of plants, showing their similarities and dissimilarities, it enables the gardener to judge with more accuracy in what line to conduct his experiments. It will suggest to him where he may improve his older varieties, while it will guard him against becoming the dupe of some absurd theory or practice. I might prolong this article by mentioning the pleasure it would afford, and the chance it would give to every one to add his mite to the great store-house of science; but lest I weary you and your readers, I will forbear, hoping that the above may induce some to study the natural history of our plants and flowers.

All About the Garden.

We glean the following items pertaining to garden products, from what was said at the last annual meeting of the Ohio State Horticultural Society:

Mr. Ritz spoke of the value of sugar beets as winter food for milk cows, making the butter as fine in color as that of summer.

Mr. Elliott commended the Early Horn Carrot as deserving more general cultivation.

Col. Richmond spoke of the Brazilian sweet potato as an excellent variety; also, the Southern Queen —five specimens exhibited.

Mr. Elliott called attention to the Student Parsnip as the best in flavor; the Hollow Crown next. Several other members commended the Student variety.

Mr. Ritz, of Plainville, said the White German Dwarf Wax Bean was a decided acquisition. He had brought from Europe seeds of a new red sugar beet which he would distribute gratuitously to members of the society. He regarded Crosby's early sweet corn as the best early of good size.

Mr. Mumma, of Dayton, said he had a new tomato that was peculiarly striped and variegated; would report on it next year.

Col. James approved the practice of having no fence around gardens, or none but board fences, these to be used as trellises for grape vines, as we find grapes do better on fences and buildings than in open ground.

Dr. Warder—Clay soil we all know is the one for grapes, and shelter from dew and rain is very benecial to the fruit.

Mr. Campbell thought the Black Dwarf Wax Bean the best he had tested; the white might be preferable on account of color.

Mr. Elliott commended the Yorkshire Hero pea, and of sweet corn he said Brill's was the earliest, then *Crosby's*; of seven varieties tested, he gave the preference to Brill's.

Pansies in Mass.—A correspondent of the Gardener's Chronicle says that no one who has not seen the effect of pansies in large mass, can have an idea of their beauty. He planted a border, 400 yards long and 24 feet wide, with pansies and cerastiums, with a single row of pyramidal Zonale geraniums in pots at intervals of ten feet, and it was the admiration of all who saw it.

Climbing Plants for the Window.

The Massachusetts Ploughman in an article on "House Plants," says: "Ivy may be trained about your picture frames, to creep over the mantle and windows, or to form a border of the paper around the room, close to the ceiling. The most brilliant flowers do not give so pretty an effect to a room as a thrifty climbing ivy. Money, Wandering Jew, myrtle, etc., grow well when hung in the window, and the effect of the gracefully drooping sprigs is extremely pleasing both outside the house and in it.

"Turnips and carrots scooped out, filled with canary seed or chicken weed, and suspended by strings in the windows, are very pretty. The leaves sprout from the root underneath, and the plants spring from the seed simultaneously. Besides the pretty effect, your birds if you keep them can have a feast through the winter upon vegetation.

"A common pine cone planted in its several crevices with canary seed, and placed half-way in water in a hyacinth water glass, is another original and very effective flower vase. For hanging vases, you can make yourself, highly ornamental ones. Bread baskets, sea shells, with three holes drilled for a cord, are very pretty; a common wooden chop basin, covered with little knotted branches, gnarled joints, dried fungi, the whole highly varnished, is as picturesque and ornamental a vase as can be desired."

New Virginia Creeper—*Ampelopsis Veitchii.*—This is a minature foliage variety of our Virginia creeper, which clings to any building with th tenacity of the strongest ivy, and producing in great profusion its dense foliage of a glossy green shaded with purple, cannot fail to command great attention. It is of exeeedingly rapid growth, requires no nailing, and from earliest spring it produces its beautiful purple tinted leaves so thickly as to form the most perfect coating wherever it is planted, the young shoots being quite purple. The leaves are sometimes divided into three parts, and are sometimes entire, turning red in autumn, similar to the old kind. It was introduced by Messrs. Veitch, and long received first class certificates and prizes at the great shows in London.—*Hovey's Magazine.*

Window Plants.—The Gardener's Monthly says that a temperature of 55 degrees will give more flowers to the common window plant than a higher temperature, and names such old fashioned sorts as Mignonette, Sweet Alyssum, Zonale Geraniums, Cupheas, Fuchias, Violets, Roses, Chinese Primrose, &c., as among the best for this purpose.

Strawberries in January.—The Los Angeles (Cal.) market was supplied with strawberries in January at fifty cents per pound.

The Snow Cactus.—An exchange says: "Along the Sierra Nevada, close to the line of snow, a plant grows of sizes varying from an inch to two inches in thickness, and height to the dimensions of the largest cabbages. It is known as the snow cactus, and depends for moisture upon the melted snow. It has been recently proposed to treat the plant as a table vegetable, and it is said that, boiled and served up as asparagus, this cactus is found equally succulent and satisfactory."

We suppose this is the new cactus recently named by Dr. Engleman *Echinocactus Simpsoni.* We are fortunate enough to possess a living plant of this species, and it is truly beautiful,—round as a globe, and completely covered with snowy-white spines. Its hardiness will be a great point in its favor. It has the appearance of a mammillaria, but Dr. Engelman is sure, from an examination of its flower and fruit, that it is an *Echinocactus.*—*Gardeners' Monthly.*

Cresses out of Water.—A correspondent of the London Journal of Horticulture, says it is not true that water-cresses grown out of water are unfit to eat. He says: Sixpennyworth of seed having been sown at Stanmore Lodge, Penge, last spring, in a few weeks we had plenty of cresses, and we have had enough for the family ever since. So far from the plants standing in water, they stand about six inches above the level of the ground. The cresses are excellent." It is doubtful if the same success would attend its growth in our hot summers, but the experiment is worth a trial at least.

Sweet Potato Climbers.—A lady florist says that a very pretty house vine is the sweet potato plant. Put a tuber in pure sand or sandy loam, in a hanging basket, and water occasionally. It will throw out tendrils and beautiful leaves, and will climb freely over the arms of the basket and upward toward the top of the window. Not one visitor in a hundred will know it, but will suppose it to be some rare foreign plant.

Gardening in California.—The Pacific Rural Press says: "The markets of our cities are supplied with beets, carrots, parsnips, turnips, cabbage, radishes, lettuce, celery, salsify, small onions and other kinds of vegetables, fresh from the grounds of the professional gardeners and in good condition during every month of the winter season. These vegetables are all grown in the open air. The seeds are planted in August and September, while the ground is warm, and with care, and by attention and irrigation they are made to germinate and grow until the first rains fall. These rains find the soil warm, and the rains themselves are generally warm, like spring showers. The vegetables thus started grow rapidly and continue to grow during the whole winter."

Entomology.

Dr. S. H. Kridelbaugh, Editor, Clarinda, Iowa.

☞Send in the Insects.—Dr. R. is chairman of the Committee on Entomology for the State Horticultural Society, and would take it as a favor to be furnished with specimens of insects from the various localities of the State, by mail during this year. Those sending will please state all they know concerning the habits of the insects sent; what they are found feeding on, etc.

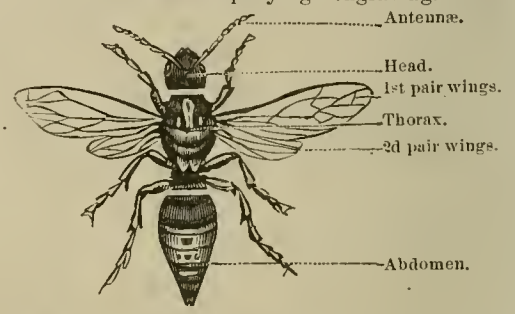
That branch of Natural History known as Entomology is one of the sub-kingdoms of Zoology. The name is derived from two Greek words—*entom*, which means *cut in two*, and *logus*, to speak; and the more common name by which the smaller animals are known—Insects, is derived from the Latin word *Insecta*, which has the same meaning as that of *entoma*. They have two entannæ and six legs, and most generally four wings, although in this latter respect they may be deficient, they respire by tracheæ, and generally undergo several transformations (metamorphosis) before arriving at a mature or reproductive state. All of the organs of motion are attached to the middle division—the thorax. They are made up of a series of horny rings or segments united by soft membraneous skin which gives flexibility to the whole body, which is in some kinds covered with feathers, while others are covered with hairs or bristles, and others with spines. The segments usually number thirteen, but are not unfrequently so closely attached as to be almost entirely obliterated, and present a less number. The tubes forming the legs and antennæ, and the integument comprising the wings are harder than the other portions.

Almost every variety of color is distributed and exhibited in the coverings of various members of the insect families, in some of which these colors, or shades of them, are most curiously and beautifully presented.

The motions of insects are varied in every conceivable form. Some crawl, some walk, some run, some fly, some swim and dive in the water, some bore holes in the earth, while others bore holes in wood.

To the many peculiarities already mentioned concerning the members of the insect world, we may add their peculiar tastes and varieties of habits which characterize their modes of living; some are vegetarians, others are cannibals, living upon and making preys of the weaker members of their tribes. It is in this last—the bug eating bug, we find the friends to agriculture and horticulture, and in the tribes of vegetable eating bugs we find their foes. Of the characters and habits of these insects, it is the intention of this department of the Western Pomologist to teach its readers; and, therefore, during the current year, it is hoped that its readers will forward by mail, specimens of such insects as may make their appearance in different parts of the country, together with a description of their habits, as fully as may possibly be ascertained.

True insects are animals homogaugliate or subarticulate, having their bodies divided into three portions—the head, the thorax and the abdomen, as shown in the accompanying engraving. The



thorax comprehends that portion of the body between the head and the abdomen, from which issue the legs and wings. The abdomen is the third principal portion of an insect's body, and lies behind the legs.

For The Western Pomologist.

Insects Injurious to the Apple Tree and its Fruit---A New One.

By W. H. W., Hartford Co., Conn.

What a host of enemies the fruit grower has to contend with. Only let one attempt to hunt out the various insects inimical to the apple tree and its fruits, and he will be astonished at their number, and the variety of ways they work for their living; all drawing their support from the life of the tree or its fruits.

Having a knowledge of some of the various injurious insects that infest the apple, I thought to improve that knowledge by reading up authorities; but soon came to the conclusion that they were too numerous to even mention, by name, in any common magazine article; so thought I would only name a few, and remark on a new one which has only of late come to our knowledge as infesting the fruit. The most destructive enemies of the apple tree are the Round-Headed Borer (*Saperda bivitata*): Flat-Headed apple tree Borer (*Chrysobothris femorata*); Oyster-shell Bark-Louse (*Aspidiotus conchiformis*); Canker Worm (*Anisopteryx vernata*); Tent Caterpillar (*Clisiocampa Americana*;) Apple-twig Borer (*Bostrichus bicuodatus*); Hammond's Leaf-tyer (*Acrobasis Hammondi*); Apple-leaf Cluster-cup (*Olcidium pyratum*); this last is a sort of Fungus on the leaf.

The most destructive insects infesting the fruit are the Apple Curculio; the Apple Worm (*Carpo-*

capsa pomonella); and the latest worm to make our acquaintance, the Apple Maggot (*Trypeta pomonella*—Walsh). This insect is described by Walsh—"The fly has a rust-red head—eyes and bristles black—face tinged with white—thorax shining black—legs pale rust-red—wings whitish, glossy—breadth of wings 0.30–0.43 inch. The larvæ greenish white color, 0.15–0.20 inch long, and about one-fourth as wide—tail end square, gradually tapering to the head, from the middle of the body—head pointed. Pupa but little different from the larvæ except in being a pale yellowish brown color. The Apple Maggot is a native American species; and its early habitat is supposed to be the thorn-apple and probably native crab-apples, but within a few years it has attacked our cultivated varieties. It works differently from the apple worm; instead of confining itself to the core, the maggot traverses the whole apple, rather avoiding the core. This maggot more generally infests fall sweet apples, and when taken from the tree looking perfectly sound and healthy, and laid away for a few days or weeks, there will be nothing but one mass of pulp, or the inside will be all burrowed out. I have often taken a sweet fall or winter apple, sound to all appearances, looking most temptingly, and upon cutting it open there was no part of it eatable, being either pulp or very much discolored. At present I think the apple maggot is confined to the Eastern States, but no doubt that it will soon be more extensively known in other sections. Instead of being two brooded like the Apple Worm, it is single brooded, the flies making their appearace in July, and inserting their eggs in the fruit, which in turn produce the perfect fly the next July.

The Red Spider.—This pest is often very destructive to fuchias, carnations and roses. A writer in the *Rural New Yorker* gets rid of the pest in this way: "Take one dozen sulphur matches, break off their ends and turn over them one coffee-cup of boiling water. When cool to the touch, sponge over leaf and stalk of each infested plant. The sulphur impregnated bath is very efficacious; and after three applications at the most, our red-skinned foes depart to parts unknown. Pure water will not kill them. A writer in the Horticulturist years ago announced that his red mite-ship wore an armor water-proof, unless of such heat as to kill the plant as well as himself, but he does not like a damp atmosphere."

Flower-Beds.—Tilton's Journal of Horticulture mentions as an example of a well arranged flower-bed on the grounds of Col. Wilder, producing a pleasing effect by way of combination; one with centre containin g *Coleus Verschaffelti*, next *Centaurea gymnocarpa*, and outside *Alternethera amœna*.

Notes on Bee Culture.

Bee-Keeping in Connection with Fruit-Growing.

Ed. Western Pomologoist:—Of all rural occupations I know of, none can be carried on together so profitably as fruit-growing and bee-keeping. Let us consider the advantages that bees derive from the fruit grower through his trees and plants. In early spring when bee-stocks are very feeble, and when the sources from which to gather honey are scarce, the bloom of the peach and plum furnishes honey and *fresh* bee-bread to at once arouse the bees to new vigor. The queen fills the cells with brood with wonderful rapidity. The colony is fast increasing in strength, and when the moth-miller makes her appearance sufficient bees are in the hive to cover every part of the comb, and Mistress Mischief finds no empty and unoccupied comb for her eggs. Next comes the cherry which furnishes considerable food for the bee-keeper. The gooseberry, currant and blackberry supply more or less honey-making food; strawberry and blackberry plantations make rich bee pasturage. The latter especially, furnishes the best of honey and of superior flavor. Apple and pear orchards are also valuable sources from which bees obtain honey and bee-bread. In the spring of 1867, while residing in Des Moines county, Iowa, my bees gathered over thirty-five pound of surplus honey per stock from the blossoms of apple orchards, and this at a time when no other blossoms worth naming, were out. "But," says one, "can I not obtain all of this, without being a fruit-grower? can my bees not go across the fence and obtain the sweets from the blossoms of my neighbor's orchard?" It is true bees pay no regard to fences, division lines etc., but distance of flight is an item worthy of consideration in bee economy. Bees placed under a tree, obtain the benefits of its shade, and make at least three trips, whilst others from a distance gather but two.

Further, what will you do to occupy the balance of your time if you keep bees only? To keep as many bees as may be to advantage does not, or should not, occupy all of a man's attention. Some, who noticed the large profits derived from a single stock of bees, have asked the question: Does not the time required to give proper care to bees fully counterbalance this profit? In order to give a satisfactory answer to this question, I have during the past year kept an exact record of the time actually spent in attending to my bees, and the result shows 3 hours and 56 minutes per stock; and profit per stock in increase and surplus honey $36.14; though the past season was not very favorable for

bees. The *bee-master* can find many hours to devote to some other occupation, and no other occupation seems so closely allied with bee-keeping as fruit-growing. The fruit-grower, whilst working among his plants and vines or among his fruits, is always where his bees should be.

He who cultivates trees and plants without bees, obtains only a part of the profit of his occupation. He should have bees to gather honey from every opening flower. Bees perform an important service in the transmission of pollen from blossom to blossom Whilst the honey-bee is regarded by the best informed horticulturists as a friend and co-worker, others charge them with damaging some of the sweeter fruits. If you examine the jaws of the honey-bee magnified you would at a glance see the total absurdity of such charge. True, bees are seen frequently on ripe grapes, pears and plums, but they do no mischief to sound fruit; they sip the juice from a crack or bruise, from spots of decay, or where the mischief had been begun by wasps or hornets; there the little busy bee may be seen "gathering up the fragments, that nothing may be lost."

E. KRETCHMER.

Red Oak Junction, Iowa.

Why do New Swarms Desert the Hives?

ED. POMOLOGIST:—I will give you a bee item that may be of some interest to such of your readers as are keeping bees. One of my neighbors, in the summer of 1869, had a new swarm of bees come out in the natural way of swarming. He put them into a new pine board hive, dressed inside. The following day they left the hive and clustered in a bush near by. The swarm was put back into the same hive, but in a day or two they made their final escape to the forest, or somewhere else.

Last summer he put another new swarm into the same hive. In a day or two they came out and were put back again, but did not go to work. After waiting eight or ten days, it occurred to the owner that perhaps want of ventilation was the cause of their inactivity. So he bored a three-fourths inch hole in the top of the hive. The bees commenced work at once, and in a very few weeks the hive was full of comb. May not this solve the mystery why new swarms of bees so often desert the hive for a home somewhere else? Would it not be well for bee keepers to pay more attention to ventilation?

M. D. MULFORD.

New Providence, Iowa.

MOISTURE IN HIVES.—Moisture sometimes generates in a bee hive in winter, and runs down the sides to the entrance, where, coming in contact with cold air, it is frozen, filling up the space and stopping ventilation. This matter should be looked to occasionally.

Notes and Gleanings.

THE CABBAGE WORM.—We invite attention to an article in this number on the Cabbage butterfly, or worm. This is the insect that made such wholesale havoc among the cabbages last season in many parts of the eastern States and Lower Canada. It has spread over a large section of country with astonishing rapidity. We shall not be surprised to make its acquaintance here the coming season. It will be well for those who like kraut to be on the look out for this new enemy.

PEARS AND PLUMS—*Ed. Pomologist:* From the best of your knowledge of pears suited to Iowa, what varieties would you recommend for a small beginning—say six varieties or so, divided into summer, fall and winter? Also what plums of the cultivated kinds, four varieties?

J. C., *Cedar Rapids, Iowa.*

REMARKS.—For Summer, Bartlett and Tyson; fer Autumn, Flemish Beauty, Duchess D. Angouleme, Louise Ben De Jersey and Seckel; for Winter, Vicar of Winkfield and Lawrence. Winter Nellis also promises well with us. Of plums, from experience so far, Lombard and the Damson. Were we to extend the list, it would be Imperial Gage, Coe's Golden Drop, Washington and Blecker's Gage. We have eight varieties of the plum put out in 1865, embracing the ones named, none of them promise so well as had hoped. Try the Miner.

MELON SEEDS. *Friend Miller:*—For years I have been saving seeds of all the best melons and canteloups, which have accumulated to considerable. Such seeds are good for any number of years. Now what shall I do with them? Here is one suggestion: Any subscriber to the WESTERN POMOLOGIST who will send a stamped envelope properly addressed, telling which kind of seed they wish, will have a small package sent to them. I have to furnish the packet and the putting of them up; which is a little trouble and expense, so that if any see fit to send an additional stamp to help cover it, it will not be objected to, as before now I have found it a considerable tax. There is nothing asked for the seeds, but if the outlay for paper packages to put the seed in, is defrayed by the recipients, of course it will be acceptable. Let it be distinctly understood, however, that how to plant and raise them, need not be asked through letter, as that can be learned through the POMOLOGIST.

SAMUEL MILLER, *Bluffton, Mo.*

Dr. Stewart—*Dear Sir:* A neighbor, Rev Ridgely, wishes to put in print the experience of some enterprising and successful fruit-grower of the peninsula. Mr. Allison tells me you are one of *the* peach men of your section. We will regard it a great favor if you will give us the figures in reference to your operations, also of any others within your certain knowledge. The age and number of trees, first cost of land, the produce, &c.

J. F. M, *Ridgely, Md. Dec.* 19, 1870.

Remarks.—The foregoing inquiry should have preceded the reply of Dr. Stewart on page 46, but was overlooked in making-up.

About Oregon.—*Ed. Pomologist:* This day (Dec. 31) is the last of 1870, and the weather is mild and pleasant. Stock roams in the pastures, fat. If disposed, or were it necessary, we might now plow, sow, and plant trees. In looking over my sale book of trees for the last year or more, I find that from the 15th of October, 1869, to the 10th of April, 1870, I dug and sold trees from the nursery every week. What other section of our great country can boast of a finer climate than this? The time was, when everything we had to export had to go by way of California, and she got the credit of our splendid wheat, flour and bacon. But things have changed. We now have direct communication with China and other parts of the world, and we have wheat, flour, lumber and other products to export. Some of the Northern Pacific Railroad men are now here making arragements to commence work upon this end of the line.

At another time I may tell you something about fruit here. H. Hanson, *Portland, Oregon.*

Pear Blight—Another Theory.—A correspondent of the Rural New Yorker says: "There may be something in my views relative to the necessity of pruning away all second or late autumn grown shoots on the pear or apple. Judging from many years of observation, I know there can be no harm in the practice, and I strongly believe there is benefit, if indeed, it be not in itself safeguard, in the prevention of one class of blight.

My view is that the late autumn growth never, or rarely fully ripens to perfection; and that the frosts of winter bursts and destroys more or less of the natural tissue and channels of circulation, leaving the sap poisoned by slow decay; and as soon as vegetation comes in spring, and the leaf is grown, so that a return of sap toward the root is formed, with that flows more or less poisonous sap, many times leaving traces on its way, that soon increase with warmth and circulation until they exhibit fully to the common observor in blackened branch and browned foliage."

About Pear Seeds.—*Ed. Pomologist:* Being a reader of the Pomologist, I wish to know, through its columns, what is the proper way to treat pear seed to have success, as I have tried it and cannot get them to grow. I put them in sand and froze them as apple seed. Also, the Stayman's Summer Apple. Can I get a half dozen cions? I wish to try them. Is not the Wagner more apt to be damaged by the borer than the trees of other varieties? It is thought so by some people about here.

H. G., *Springville, Iowa.*

Remarks.—Pear seeds should receive the same treatment given to apple seeds. We soak the seed ten to twenty-four hours, mix with saw-dust or loam—in bulk about two parts of dust or loam to one of seed. Then freeze, and keep so till planting time. Send to Dr. Stayman for scions. We have a large number of Wagner trees in our orchard. Do not see as the borer is partial to them.

Ed. Pomologist: We are having a very fine winter as usual. About two weeks of December the weather was cold and clear. January so far has been perfect spring. Tree planting is going on briskly and the farmers are putting in spring grain. I have some fear that the warm weather will swell the fruit buds and expose them to frost that we may have in March. Your journal is liked by every one I show it to. Success to it.

A. B. Roberts.

Walla Walla, Washington T. Jan. 25, 1871.

The Soulard Crab.—*Ed. Pomologist:* Permit me through your journal to say a word in favor of the Soulard Crab. Though decidedly a poor apple to eat from the hand, as a culinary fruit it has but few if any equals, and is worthy a place in all gardens. The fruit I deem equal to the quince, and in use from November till May. The tree a strong grower, bears young, and good yearly crops. Every family should have a tree or two. Peter M. Gideon.

Excelsior, Minn.

California Figs.—The Calaveras Chronicle says Victor Partroon of the Esperanza ranch has shipped to San Francisco, this fall, 1,500 pounds of dried figs of a superior quality, which brought from 15 to 18 cents per pound. Also two tons of dried plums, which sold readily for 20 cents—all by himself. This result shows what a little energy may do, in utilizing the surplus products of our orchards and small fruit nurseries.

Asparagus from Seed.—The Gardener's Monthly says: "It has been argued that asparagus will not come true from seed, but, like rhubarb, it can be propagated true only by division of the roots. There is no reason why varieties of asparagus may not do as well from seed as peas or beans."

Honey Locust for Hedge.

We have often recommended the Honey Locust for hedging, under an honest conviction of its great value as a hedge plant. We have seen it in hedge rows in different stages of growth, from transplanting to the perfect hedge, and feel assured that it is the very best plant within our knowledge for growing live fence in a climate where the Osage is at all tender. Last fall, Mr. Meehan, editor of the Gardeners' Monthly, paid a visit to the extensive nurseries at Syracuse, N. Y. Among other objects of interest that attracted his attention was a hedge of Honey Locust, and of which he says:

"A feature of the nursery of which Mr. S. is justly proud, is a hedge of Honey Locust, along the turnpike road, bounding his nursery. It is strange that such examples as is before the public, showing how cheap a live hedge is—how beautiful they are—how easy they are managed—how really protective in their character instead of the 'get over me if you please' look of a post and rail fence—should have so little effect. It would seem as if the whole world delighted to spend money for the fun of it, and have nothing to show for the money spent. The Honey Locust is an admirable plant for cold climates, and is far better than any other plant where the soil is rather poor or thin. There is one advantage in the Honey Locust which no other plant has. The Osage Orange, for instance, has thorns on its young growth, and that is the end of them,—but thorns come out of the old wood of the Locust, and continue to come out year after year,—branching and growing simply as thorns, and nothing will ever dare to go through a hedge of this plant even though there should be a tolerably large gap invitingly open."

Grass Seed for the Lawn.—Barry says "Redtop is the best grass for a lawn, about fifty or sixty pounds to the acre. Fifty pounds will be sufficient if the seed be clean and good, which it seldom is. Some people recommend white clover, say one-fourth, to be mixed with red top, and this does very well, but I prefer the pure red-top. Early in the spring is the best time for seeding a lawn."

Heading off the Borer.—A writer in the Canadian Farmer says one mode of doing this is to rub the trees over with common soap, soft-soap will do very well—early in June, just before the beetles lay their eggs. Another mode suggested, is to plaster over the trunk of the tree with a thick mixture of cow-dung and clay; this is said to prevent the egress of the insect, and cause it to die underneath. Thinks it would also prevent the eggs being laid on the tree, or at any rate be a hindrance to the newly hatched grub in his attempts to penetrate the bark.

European Larch.—In confirmation of what we have previously said of the European Larch being a rapid growing, durable and valuable tree, succeeding well in the West as in the East, we received some very fine samples for transplanting, of Mr. Robert Douglass, Waukegan, Ill, who grows it and evergreens more extensively than any other person in the *United States* or perhaps *Europe*, with a specimen cut from the butt of a tree fifteen years old, which grew in blue grass sod on the grounds of Mr. A. R. Whitney, Franklin Grove, Lee Co., Ill., which measures nearly thirty-four inches in circumference and over twenty-one inches being solid, red, durable wood of fine grain, almost equal to the best of Red cedar.

There is no question about the rapid growth and quality of the tree, and it should be more extensively planted as a forest tree than any other we can now name.—Associate Editor.

Keeping Cider Sweet.—At the meeting of the Warsaw, Ill., Horticultural Society held January 25th, among other things the question as to the best mode of keeping cider sweet was talked up.

Mr. Hoppe produced a specimen of very fine cider, and of a clear color, treated as follows: To a barrel of cider, first allowed to ferment two days, he added a bottle of chloride of lime, previously dissolved in cider, the whole was then allowed to remain in the barrel four days, when it was racked off. President Hammond also presented a specimen of very good cider but not so clear in color as Mr. Hoppe's, treated in a different manner as follows: To a barrel of cider, first allowed to ferment forty-eight hours, and then heated and skimmed, and racked off, he added a pound of pulverized mustard seed, two pounds of raisins, and a half pound of cinnamon bark. Another process by Mr. Hammond was to merely heat and skim the cider either before or after fermenting which made a very pleasant and agreeable drink.

Make Trees Branch Low.—The Horticulturist says train your pear trees for garden and field use so they will branch at a distance of one or two feet from the ground, and enumerates the following advantages for doing so: "It is easy to trim and gather the fruit; falling fruit is little injured; all branches being sturdy, will not be strained by overbearing or overweight of fruit; soil will be kept shaded and moist; trunk will be protected from the scorching sun."

The Baldwin Apple.—A New Hampshire fruit grower says that his experience in fruit growing extends over a period of nearly sixty years, that if he had to set out a dozen trees on his farm now, ten of them at least would be the Baldwin.

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VOL. II. Des Moines, Iowa; Leavenworth, Kan., Mar., 1871. No. 3

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Should Trees be Pruned? Article 3.

BY THE ASSOCIATE EDITOR.

Having in our former article briefly considered the leading functions of vegetable life, and the relation they hold to each other and external objects, we shall now contemplate the application of those principles in practice.

As every plant has a particular form and growth endowed upon it by nature, and the *buds and foliage* control its growth, they should be preserved unmolested, that they can perform their duty.

We must admit that nature has endowed every plant with a particular form of growth, which is necessary to its health, longevity and productiveness; else nature is a failure in impressing it with peculiarities which are inimical to its existence. This conclusion we cannot admit, for vegetable life has had a primary existence and fulfilled its functions independent of man.

Therefore the pruning of a tree is inexpedient because it has a restraining influence and changes its natural form and growth to that of the caprice of man. Restraining the sphere of vegetable action by whatever process has a deliterious tendency and hasten its destruction. Consequently pruning should be used only as a remedial agent in disease in overcoming injuries and removing unnatural obstructions and deformities; instead of pruning in health for *form, vigor, health, productiveness* and *transplanting*. If seeds are planted in open space with free access of light and air in congenial soil, they will grow and the plants will assume their natural form, and grow stocky without the *pruning knife*, and have a fine, lively green color and be healthy; and if properly transplanted and placed under proper cultivation and congenial influences, they will arrive at maturity at a specific period in harmony with their nature, and be healthy and live to a long *old age*. But if planted in a thicket they will grow slender, and if cut back to make them grow stocky it not only checks their growth, but deprives them of the ability to make growth by destroying their absorbing surface, and if the practice is often repeated they loose their *chlorophyll* and become pale, sickly and soon die. If we shorten in or prune a tree at transplanting, we rob it of its *buds*, which are the germs of life, and in that proportion retard its growing, and prolong its evaporation, and hasten its destruction The buds are not only the vital principle, but the *terminal buds* are essentially necessary; for without them the tree cannot grow until new terminal buds are formed, because within them are stored up the developed and matured matter and vital principle, which burst forth into activity at the first dawn of spring, by the electrical and vivifying influence of the sun. If these buds are destroyed it is like a pump without a valve, or a conductor without a connection, for the tree is cut off from the moisture of the earth and the carbonic acid of the atmosphere, and left standing like a green stick drying up by evaporation. That the terminal buds are the first to start into active growth early in the spring can be veri-

fied readily by observation.

So well established are these principles in practice (but overlooked in their results) that nurserymen bud their stocks at the time they prune them or before as the bark will immediately set, and then they will have to wait some number of days after, until it peels again. The same result follows if we shorten in all the shoots and cut off the terminal buds. Here we have a positive fact that an established tree in active growth, refuses to grow for a number of days by shortening-in or pruning-off its shoots. Now as an established tree can not grow for some time after being pruned or shortened-in, then how much less can it start and grow when deprived of its *buds and branches at transplanting* when *not well established.*

If we prune a tree to give it *form*, we change its natural growth and presume to know better than nature how it should grow to fulfil its destiny. Then we ask why has she impressed her distinct peculiarities of growth and form upon every variety and species. If nature has failed in her works which are unerring, how can fallible, erring man instruct her? The simple fact is we in our presumption suppose that we can do what she has failed to perform to suit *our fancy and imagination.*

To prune a tree to give it *vigor* is simply chimerical; we cheat ourselves into the belief that a few rapid shoots or a sapling is greater than the whole aggregate growth would have been. How a reasonable person could work up his imagination to believe in a practice so contradictory and unphilosophical, is a profound mistery.

When a *limb or tree is cut off* the part below the wound does not grow a particle until the top has regained its original circulating capacity; upon the same principle as a conductor of electricity; a rod whose size is unequal, its conducting power is reduced to the minimum size, because the small portion of the rod has not surface sufficient to conduct as much as the larger portion. If we prune a tree to hasten its maturity, we retard its circulation and impede its growth, upon the same principle as working it on a dwarf stock; and a less quantity of fruit is produced early at the cost of the vitality, constitution and longevity of the tree. So, in whatever respect we restrain the growth and natural form of a tree to hasten its maturity or for any other purpose we strike at its vitality and hasten its destruction.

The Apple.—Its Propagation, No. 2.

By the Associate Editor.

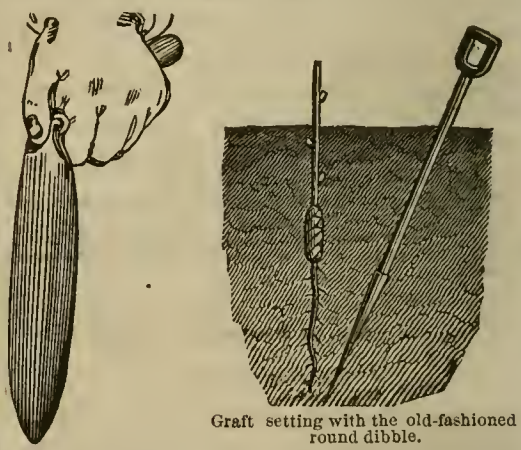
In selecting a piece of ground for the grafts, it should not be poor, neither very rich, nor hilly, but rather level, although a gentle slope either way is not objectionable.

It should be clean and dry, deeply and thoroughly plowed and pulverized, and made level by filling up the dead furrows and abrupt irregularities.

Have a flat dibble made of steel, eight inches long in the blade, two and one-half inches wide, and a little over an eighth of an inch thick through the center of the blade, the edges tapering around to a point at the lower end, then beveled on each side and below, with a shank made on the top three inches and a half long, for a handle, made at right angles with the blade. The handle should be made of hard hickory or tough oak, five inches long, one inch and one-eighth in diameter and a little larger at one end. Grind the blade smooth, to a dull edge.

The following cut shows the dibble one-fourth its natural size, and with the above description we hope will be fully understood. As this dibble is so much superior to any other for all purposes, we have been particular in describing it.

Also procure a strong line, clear of knots, about sixty or seventy yards long, with two pointed sticks to tie on each end to set into the ground to hold the line in its place. As early in the spring as the ground will work have everything in readiness and commence setting the grafts.



Graft setting with the old-fashioned round dibble.

Lay off the ground with an alley running across the rows every sixty or seventy yards, for convenience in passing through the nursery in selecting varieties and taking them out. Having on the ground a box of grafts, a good hand rake, two measuring rods three and one-half feet long, one at each end, (if the ground is scarce, three feet will do,) permanent label-stakes, a small basket or bucket to drop the grafts out of, and a bucket of water. Commence on one side of the first block, and stretch the line to the alley, tight. Then rake *over the line*, removing all the clods to the damp earth, keeping the line straight. Then take the grafts out of the box, freeing them of the sawdust, and dip them in the water and place them in the basket, enough to go through once. Now let a boy

lay the grafts on the left side of the line, about ten inches apart, with the roots next the line and close by it. Having placed the label stake, with the name plainly written upon it, at the commencement, take the dibble and walk along upon your knees with the line between them, push the dibble down close to the right side of the line, and give it a slight twist, which will make an open corner. Then stick the graft in its place with the left hand while the dibble is in the ground, and hold it there until the dibble is withdrawn; then press it in again tolerably close to the graft, and by a twist against it make the graft firm, leaving but one bud exposed.

When the row is finished come back and commence again at the same end, and so continue until done, commencing the next variety where the last left off, with the label between. Having finished setting all the grafts, make a record in a book of each kind, and the number of each, for future reference in case a label should be defaced or removed.

Cultivate the grafts before the weeds start, with a horse-fork run close to the row. Then hand-hoe and weed as often as necessary. Stir the ground frequently with the cultivator, and keep it loose and clean. Never allow the weeds to get the start of you, for the strength and growth of the grafts depend upon clean and thorough cultivation, as no after treatment will ever restore them.

In the fall of the year throw a light furrow against the grafts as a partial protection to keep the frost from heaving them out, and also to keep the water from settling aroung the young trees.

In the following spring, throw the furrow back in its place and cultivate the ground thoroughly, as in the season before. Do not prune back the grafts, or give them any other pruning, as some recommend.

If well cultivated they will be fit to set out or sell, as many prefer them, but two years old. We prefer cultivating them another season thoroughly before transplanting, except some few of the more rapid growers, which may be set out. This season, as before, do not shorten in, prune or cut off any of the branches.

Those remaining after the third year require no cultivation except to cut out the weeds, as they are as large as they should be to transplant early, although they may be removed with care and set out successfully, even of larger size; but it is not advisable to do so.

Having now raised the trees in the nursery, we are ready to plant the orchard, for which purpose we should select the most favorable situation. The highest dry land sloping north is the best. Northeast and northwest are next, and the south the least desirable—although it may do when no other can be had.

To prepare the ground for planting the orchard, it should be first thoroughly and very deeply plowed, and then harrowed smooth and level. It may be planted in the spring or fall. In Kansas we prefer the fall, but in extreme latitudes it is better to defer the work until early spring, as soon as the ground will work. If done in the fall it should be soon after the first hard killing frost, and may be continued as long as the ground is open and the weather not freezing cold.

The laying out and arranging of an orchard is a very important operation, and is seldom properly done, because but few are fully acquainted with the habits and characteristics of trees, or even know best how to obtain and secure the objects desired.

An error in judgment is not only an error of a lifetime, but that of a generation, and can never be recalled even by commencing anew. There are many difficulties to encounter at the outset: The distance trees should be planted apart but few agree, in fact, many very widely differ; and as for varieties, they are as varied as the different minds. Even the laying off of an orchard, the depth the trees should be planted, and the manner it should be done, are not fully settled. From so many different opinions and state of confusion, it would appear to be presumption to attempt to reduce them to system, order or harmony.

The number of trees that a person should plant cannot be given, for much depends upon the means of procuring them, the desire to have them, and the objects in view in planting them. For family use but few varieties are advisable, and they should ripen in succession and keep up a supply until new fruit comes again. But for commercial purposes you want hardy, productive and showy red apples in their proper season, and a very large proportion winter, and long-keepers. If convenient to a good market a proper share might be summer varieties, but not many fall or sweet apples.

India Rubber for Grafting.—Some of the English gardeners have successfully used strips of India rubber in the place of grafting wax, being neater, more perfect, and not soiling the fingers. Sheets are purchased in market for six pence per square foot. They are about as thick as brown paper. They are obtained of the manufacturers of this article before it is applied to muslin and other surfaces. The strips cut from it are about an inch long and the eighth of an inch wide, for small grafting, the pieces stretching two or three times their first length. The ends adhere when pressed firmly with the thumb nail, the sheets having been previously washed and wiped dry. It strikes us that these strips would possess advantages over bass in budding, the bands yielding with growth and preventing cutting into the bark.—*Country Gentleman.*

The American Chestnut—Cultivation.

The natural scarcity of timber in a large portion of the Western States, and its rapid disappearance in the older-settled portions of the country—in their primitive state one vast forest—is a matter justly attracting the attention of both agriculturists and manufacturers. The question is—"from whence shall come the supply of timber for future generations—for fencing, fuel, building, and for manufacturing purposes?" The only solution to this question is, forest tree culture, and which we are glad to see is attracting the attention which the importance of the subject demands. In the Eastern States, much land, which has been in cultivation for generations, is being spontaneously re-timbered by a growth of spruce, pine, birch, maple and other species of timber indigenous to the country. A field or tract of land there when abandoned by the farmer, soon shows a growth of timber unaided by the hand of man. Not so here at the West. To timber our naked prairies, we must sow and plant; and to attain the best results we should go about it understandingly—know what is best to plant, and the best way to do it.

Of the deciduous trees, the chestnut, black, white and hickory walnuts, white and sugar maples, white ash, elm and birch are all very desirable, and may be easily grown from seed. Among the number, the Chestnut stands pre-eminent in our estimation. There is no tree that can be grown from seed more readily, or that possesses so many valuable qualities. For posts or rails the timber is invaluable. We have seen fence rails of it in New England fifty years old from the log, and apparently as sound as ever. The tree is a rampant grower, re-productive and produces a most

LEAF AND OPEN BURR OF THE CHESTNUT, NATURAL SIZE.

valuable and profitable fruit, No other forest tree possesses the re-productive power of the chestnut. A chestnut forest may be cut at any age and it will reproduce itself in six to ten years. We have seen sprouts pushed up eight to ten feet in a single season from the stumps of trees cut the previous winter.

It has been truly said of the chestnut: "It is beautiful in bloom, refreshing in the rich verdure of its foliage, and satisfying in the abundance of its sweet nuts. The farmer wants it for timber, rails, posts, fence stakes, hop poles, grape trellis and stakes, and wood. A forest once planted is established for all time."

HOW TO GROW THE CHESTNUT.

The seed should be gathered when it drops from the burr and mixed with three parts of sandy loam to one of the nuts, and stored in a cool cellar for the winter. Fall planting or burying out of doors exposed to the frost, is unsafe, though attended with success sometimes. The loam should be just moist enough to retain the natural moisture of the nut, so that the meat will not shrink from the shell The nuts may be boxed up fresh from the burr and kept two or three weeks without injury before packing in loam.

NURSERY GROWING.

For nursery growing, plant six to eight inches apart in rows four feet apart. The plants, when young, are tender, and liable to injury from a hot sun. The best protection is thorough cultivation of the soil to produce a vigorous growth, thereby increasing the vital power of the plant, and enable it to resist the effects of great heat. Late in Autumn turn a furrow on either side of the row up to the plants—hilling them up four or five inches. In winter they will kill down to the surface line, but if well buried up, the plant will send up a new shoot from below for the future tree.

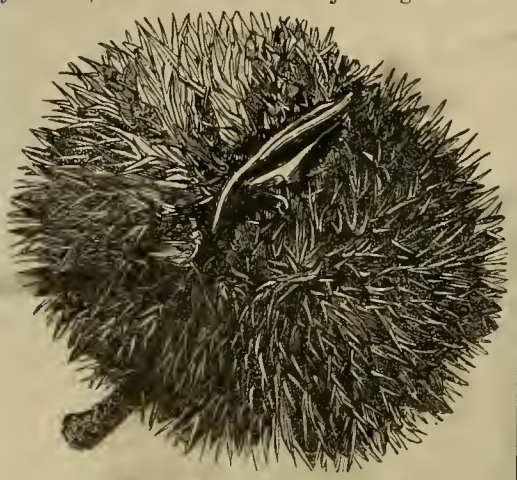
LEAF AND BLOSSOM OF THE CHESTNUT.

FOREST GROWING.

For standard timber, or forest growing, lay off the ground as for corn and plant the nuts four feet apart each way, and put a hill of potatoes between them one way. The potatoes will serve to show the rows in cultivating. The second year, plant potatoes or beans the other way, and continue alternating those crops until the trees are too large to admit of a crop. When large enough to be of service in fencing, thin out by removing alternate rows each way—leaving the trees in a square of eight feet. If a large growth and a permanent grove is desired, when the trees begin to crowd, repeat the thinning out by again removing alternate rows—leaving the trees in squares of sixteen feet. Where hops are grown we do not see why the Chestnut may not be profitably grown for poles. Where grown close together, as in the nursery row, the trees run up very straight and slender. If well cared for, five or six years growth

will make a good hop-pole.

For transplanting get young trees—not over two years old, and we are told that yearlings are still



THE BURR JUST OPENING.

better. We would not take the gift of trees more than two years old from the seed. We would refer those who wish to purchase trees, to our advertising columns.

Fungi in Timber--Interesting Discoveries.

It is a well known fact that animals have been destroyed by the growth of a vegetable fungus within them, which eats away the vital organs and thus produces death. This fact attracted the attention of scientific men, and very many experiments were made, which have established the fact that the premature decay of timber is owing to the presence of this fungi. Found, as it is, through all parts of the wood or injured portions of living trees, as well as the cut timber, the manner of its presence becomes of vital importance. The puff ball found on low, sour land when placed under a powerful glass is found to be filled with seeds, of such minute proportions, however, as to appear to the naked eye, when forced from the ball in any quantity, to be nothing more than a vapor, yet each of these seeds contain the germ of life.

The immense number of plants of the fungus order give forth their myriads of minute seeds, which settle on the soil around the trees; these seeds being washed through the earth by the rains, pass into the roots of the trees and are carried by the sap through every pore; they do not germinate, however, until decay sets in and fermentation takes place. If the timber, therefore, be treated in such a manner as to prevent fermentation these seeds will not germinate, or if they do commence, the growth is stopped until reproduced by like causes. If there be any doubts as to the seed of the fungi being carried through the tree they may be dispelled very readily by examining different kinds of wood, the most porous of which show large quantities of foreign matter through every portion of the tree.

Certain kinds of ash are so filled with grit as to dull the sharpest tool in a few minutes. The lighter the soil upon which the ash grows the greater the difficulty. During our experience in the carriage shop we have been called upon to use ash from North Carolina, which grew on light sandy soil, the grain was coarse and hard, while the porous strata between the grain was very open and so filled with grit as to cause a great deal of annoyance when dressing it up; this grit was not confined to the outside of the plank, but was found to be equally marked in its presence in the center of a six inch plank as on the surface. An examination of this grit under a powerful microscope revealed minute particles of white sand, which must have been carried into the tree by the sap as it coursed upward. Following up the idea thus obtained, that this sand found its way to the timber through the roots of the tree, we extended our observations, and by a series of experiments reached the conclusion that certain kinds of soil were better adapted to grow prime qualities of timber than others.

We found that ash grown on heavy clay soil was entirely free from the gritty particles, while that grown upon sandy soil, in the same section of the country, was filled with grit. Knowing this to be the case, we are ready to believe that the seed of the fungus, which is so minute as to require the assistance of the most powerful glass to detect its presence can be very easily drank in with the moisture by the roots of the tree, and thus plant itsself in every pore. These fungi show themselves in two forms, one the dry rot, which completely kills the fiber of the wood, but yet leaves it in the same form, when undisturbed, as though it were not present, and the other in powder-posting, which reduces the porous portion of the wood to a fine powder.

In the case of the dry rot the first indication of its presence is in the appearance of a series of minute white points, from which a filimentous substance radiates, which permeate eveay pore, and as it gathers strength, passes through the grain robbing the wood of all vitality, rendering it brash, and finally reducing it to a powder. Powder-post proper is alike the result of a fungus, which, however, instead of permeating the wood in every direction, follows the pores only, reducing the softer portion to a powder in which a small grub is bred; in most instances this grub exhausts itself in the wood and dies, leaving a thin shell to show where it had been; sometimes it eats its way out, as we have seen it repeatedly in wooden axles and sometimes in spokes.

In one instance that came to our notice a spoke had been in use eight years, and kept well painted

all the time, yet a grub had eaten his way through the timber; on sandpapering the spoke for repairing the shell of paint above the grub broke in and a grub an eighth of an inch long was removed; on following the burrow for about six inches the end was reached, which was over a quarter of an inch in from the surface, and the wood all around the end showed no inlet, leaving the conclusion upon the mind that the grub in embryo must have been carried to the hatching place by the sap of the tree, or to have been an animalculæ produced from the fungus. We are led to adopt the latter idea from the well-known fact that, throughout the vegetable and animal kingdoms there are connected links, and so low is the order of animal life that scientific men differ as to whether certain species should be classed with the animal or vegetable kingdom; and also from an examination of numbers of these grubs some of which were less than one-sixteenth of an inch in length. They were placed under a glass that magnified one hundred times, and although small protrusions could be discovered, there was nothing like a mouth, thus placing them among the Protozoans or fifth sub-kingdom of animals.—*Carriage Journal.*

For the Western Pomologist.

Gleanings on Pomology.

By J. Stauffer, Lancaster, Pa.

In this age of improvement, when continual new names and varieties of fruit are brought to our notice, the botanist who only sees the generic character is nonplussed, and has to take a back seat, when the naming of particular sorts of apples and pears is desired.

It is remarkable that the word apple, (in German apfel,) is of such a doubtful derivation. One authority says, the apple, *pyrus malus*, or English name is derived from the Greek *apios*, and the Celtic *api*, both signifying a fruit.

Dr. Prior says tha *ap* is in Tend and Sanskrit "water," and *p'hala* "fruit," which might lead us to believe that it originally meant water, or juice-fruit, with which the Latin *pomum* from *po*, to drink, exactly tallies. He also states that from a close research he is satisfied that its origin is from the East. and that the garden apple, is not, as is usually supposed, an improved crab, but on the contrary that the crab is a degenerate apple; be this as it may, it is evident that independent of the scripture mention of the apple, several sorts of the cultivated fruit were known in the days of Pliny.

The apple is essentially a fruit of the colder and more temperate regions of the globe, over which it is almost universally spread and cultivated. The apple tree is known to attain a great age. Haller mentions some trees in Herefordshire that stood for a thousand years, and were highly prolific; but Knight considers two hundred years as the ordinary duration of a healthy tree, grafted on a crab stock, and planted in a strong tenacious soil. Speichly mentions a tree in an orchard at Burton-joyce, near Nottingham, England, of about sixty years old, with branches extending from seven to nine yards round the bole, which in 1792 produced upwards of a hundred pecks of apples.

Of all the different fruits of the colder latitudes, the apple is perhaps the most servicable, easy of culture, remains longer in season and is universally relished. Many of the finer pears keep only for a short time, while the apple, with a little care, can be kept from one fruit season to the other.

The wood of the cultivated apple tree is much heavier and close grained than that of the wild, in proportion as 66 is to 45, and almost equal to Boxwood for wood-engraving, when properly seasoned.

The apple is cultivated to the sixtieth degree of north latitude; even in the Orkney and Shetland islands very good apples grow. The prophet Joel, among other fruit mentions the apple tree. The art of pruning was suggested by observing the more vigorons shooting of a vine after a goat had broused on it; it is probable that the occasional union of the boughs of distinct trees may have also suggested the idea of grafting, although Moses in his directions to the Isrealites when they "shall come into the land and shall have planted all manner of trees for food," makes no mention of grafting. Pliny, however, mentions apple trees "that will honor the first grafters for ever," and this enthusiastic praise at so remote a period, is remarkable.

To the facility of multiplying varieties by grafting, is to be ascribed the amazing extension of the sorts of apples, pears, &c., probably from one common stock, as also by the application of the pollen of one sort to the blossom of another, in which insects can take a part in the multiplication of varieties in the vegetable kingdom.

We find Shakspeare putting these words in the mouth of Justice Shallow, in his invitation to Falstaff:—"You shall see mine orchard, where, in an arbour, we will eat a last year's pippin of my own grafting" Sir Hugh Evans, in the "Merry Wives of Windsor," says, "I will make an end of my dinner—there's pippins and cheese to come." Pippins were, therefore, in the time of Shakspeare, delicacies for the dessert.

In 1573, Tusser mentions in his list of fruits, "apples of all sorts." Parkinson, in 1629, enumerates fifty-seven sorts. Evelyn, about thirty years afterwards, says, "It was through the plain industry of one Harris, a fruiterer of Henry VIII, that the fields and environs of about thirty towns in Kent only were planted with fruit from Flanders, to the

universal benefit and general improvement of the country.

In 1650, Hartlib speaks of "one who had two hundred sorts of apples," and "verily believes there are nearly five hundred sorts in this island."

The second edition of the Catalogue of Fruits, published by the Horticultural Society of London, in 1831, contains names of 1400 sorts of apples. These in 1833 were extended beyond fifteen hundred distinct sorts.

My object is to show simply by gleanings from the records, what has been done in former years. I will not attempt to say what the number of sorts, differing in name, at least, if not in kind, are now known to amatures and nurserymen; a full list would be a formidable task to write out. It is true that all varieties have a tendency to degenerate into the primitive character of the species, but it is equally true, that any variety may be perpetuated with all its excellencies by proper culture, and more especially varieties of trees

Vines, olives, poplars, and willows have been propagated by extensions for ages, and are still, as far as can be ascertained, as vigorous as they were in the time of Noah or Pliny.

Pomaceæ (Lat. pomum, *an apple*,) is that division of the natural order *Rosaceae* to which the apple, pear, quince, and medlar belong. It differs from *Rosaceae* proper in having an inferior ovary.

The word "pomatum," according to Girard, was so called from being anciently made of the pulp of apples beaten up with "swine's grease," (lard,) and rose-water.

The *verjuice*, often mentioned by the older writers, was a description of vinegar, produced from the most austere fruits of the crab apple.

For the Western Pomologist.

Effect of Coal Gas on Trees.

By A. Veitch, New Haven, Ct.

"Dr. Poselger has, it is said, shown by repeated experiments that the growth of trees and shrubs is not interfered with by any quantity of gas that may escape in the soil, and find its way to their roots, and consequently, that the illuminating gas escaping from mains does not injure the trees growing along the streets and promenades of cities, as many persons have supposed. — *Gardener's Chronicle.*"

The statement contained in the above extract relative to the effects of coal gas upon trees, seems to be at variance with impressions I have received from books and from experience regarding it. But not having seen a detailed account of the experiments which led Dr. Poselger to such a conclusion as the one stated, it would, perhaps, be unjust to question its correctness in some sense which does not appear. There can be no question, however, but in the ordinary sense illuminating gas, when it finds its way to the roots of trees or other plants in a growing state, will, beyond peradventure, kill them.

There seems no question relating to the growth of plants better understood than that they receive their food by their roots and by the leaves, in either a liquid or gaseous state, and that both sets of organs are alike susceptible of injury, and can readily be destroyed by such poisons as prove destructive to animal life. True, it is said some species manifest something like choice or instinct in rejecting certain poisons when presented to their roots, but these are exceptional cases, and the overwhelming majority will partake of everything capable of entering the system, either to prove a bane or a benefit.

Five years ago a neighbor of mine had some fine Elm trees growing on the side of the street in front of his residence, which suddenly showed signs of suffering from some cause not clearly apparent. I told him it was more than likely the main gas pipe was leaking, though not perceptible by us, as not only his trees, but three or four on the opposite side, also showed such signs—as might be expected should this be the case. Nothing was done in the matter until the following spring, when it was considered proper to replace the trees, then dead, with living ones; and in digging pits for this object, the cause of the mischief at once disclosed itself by the escape of gas in such excess as nearly to prevent the work being finished. In this posture of affairs, it was deemed advisable not to plant until the leak in the pipe was repaired, and time allowed the gas to escape from the ground. In a week or two, and when all apprehension of further mischief was removed, the trees were planted, partly in fresh soil got for the occasion, and up to the present time have done well.

This plain matter-of-fact statement seems to leave no room to doubt but that illuminating gas coming in contact with the roots of plants in a growing state works as much harm as gas from a stove or a furnace escaping into apartments where they are kept. In the latter case it is by the leaves instead of the roots the poison enters the system, but in both cases alike to make a direct assault upon the principle of life with which they are endowed.

Remarks.—That illuminating gas, when brought in contact with the roots of a tree or plant to any considerable extent, will destroy life, we have not the slightest doubt. Since gas works were put up in this city, some three or four years since, many fine and valuable shade trees bordering the streets have perished. The cause of their destruction in every case has been most satisfactorily accounted for in the leakage of gas from the main pipes, its permeation through the soil and consequent contact with the roots of the trees.

The Vineyard.

For the Western Pomologist.

The Scuppernong Grape.

By A. C. Cook, Covington, Ga.

This grape is indigenous to Roanoke Island, N. C., and according to history was discovered by Sir Walter Raleigh. This vine, in 1610, was three inches in diameter, and at present covers over one acre of land; and in 1869 produced over 2,000 gallons of wine. Another vine, in Tyrrel county, N. C., in 1869, produced 2,530 gallons of wine, according to the statement of Mr. Van Buren, a noted pomologist. The Scuppernong has been found growing wild in the forests of Georgia. It commences bearing the third year from the layer, and will double its production annually. It blooms after all danger of frost has passed. In this latitude (33 deg. 30 min.) it blooms from the 10th to the 20th of June. No disease of leaf or fruit has ever been known, nor have I ever seen it disturbed by any insect. Last August, all the native vines about here were defoliated by the leaf-roller. I saw Catawba vines alongside of the Scuppernong, the canes of each entwined, yet the Catawba vines were denuded of foliage but not a leaf of the Scuppernong was affected. There is no necessity of pruning the vines, so far as its bearing capacity is concerned. The popular mode of training in the South is on arbors constructed of posts and rails. The usual, or most common distance for planting, is 30 by 30 feet, and it requires from fifteen to twenty years for the vines to cover the arbor completely, and produce full crops. Few men are willing to wait the third of a lifetime to realize the full development of any agricultural product, and as time is money in this fast age, I cast about for some more expeditious mode of realizing the full benefit from the cultivation of this grape.

Let the soil be well worked or stirred up to the depth of one foot or more, and underdrained. Set the vines in rows ten feet apart, and fifteen feet apart in the row. Set a stake to each vine, ten feet high, upon which to train the young vine the first season. As the vines extend up the stake, at every two feet, as near as possible, leave two laterals for training right and left. Before the commencement of the second year's growth set posts ten feet high equi-distant between the vines. At distances from the ground of two, four, six, eight and ten feet, stretch No. 12 wire, to which train the laterals. In four years from planting the trellis will present a solid wall of the most beautiful green, with its golden fruit.

The Scuppernong is propagated by layers or grafting only. The vine is slender and short-jointed, wood hard and close grained. Not one in a hundred cuttings will strike root by the ordinary method. Some nurserymen propagate it by grafting upon roots of the Muscadine. The vine does best upon a sandy or not overly fertile soil. On a rich soil the vine makes wood at the expense of the fruit. Still, the soil should not be very lean. Land that will produce twenty-five bushels of corn to the acre, will produce good crops of fruit. The fruit is grown on spurs of two to three years' growth—differing in habit of fruiting from all other grapes. The vine will not succeed north of latitude 37 deg. Cold of zero kills the vine to the ground.

In the August number (1870) of the Pomologist it is stated that the must of the Scuppernong has been known to register 96 degrees. My experience does not corroborate that statement. True, some trials have shown 92 by selecting the grapes, while the average grapes of the same vine only registered 72. I have generally added about three-fourths of a pound of best refined sugar per gallon of juice and fermented in large casks with tin tubes inserted air tight in the bung, with the other end immersed in a vessel of water. The fermentation is not very active, as shown by the escape of gas in the bubbling of the water. After fermentation has ceased, I make the cask tight—filling up twice a month till March, then rack into clean casks. By this time it is clear, with a fine, sweet, Muscatel flavor; yet much gluten remains, with a tendency to effervescence, and continues to deposit sediment for two or three years. For this reason it has been customary to add some kind of spirit to the wine to prevent

acetic acid. I have never lost any wine from this cause. Scuppernong wine is now used in New York City to a considerable extent in the manufacture of Champagne. Several parties in North Carolina are also manufacturing Champagne from it. One party has a vineyard from which they expect to make, when in full bearing, 200,000 gallons of Scuppernong wine per annum, and purpose to manufacture the whole product into Champagne. Under the old process of fermentation, I have never succeeded in producing a *dry wine* from the juice of this grape. Late in the fall of 1869 I procured R. d'Heurense's patent air apparatus and applied his process to new Scuppernong wine some four or five weeks old and quite sweet, at a temperature of 80 deg. F., obtaining in less than one week a *sound dry wine* showing eight per cent. of alcohol. In two weeks' time from the commencement of æration, the wine was clear and bottled; and in less than three weeks from the commencement of this process samples of the wine were exhibited at the Georgia State Fair, and received a diploma from the awarding committee.

With your approval, Mr. Editor, I propose in a future number of the POMOLOGIST to give the theory and practical working of this new scientific principle in the manufacture of wine and other purposes. I have no doubt that Scuppernong wine made by this process will compare favorably with the best wines made from any of our native grapes. Millions of acres of land in the Southern States adapted to the cultivation of the Scuppernong, can be bought for from $3.00 to $10.00 per acre.

Tree Culture of the Grape Vine.

Some years ago we published a paper from the "Proceedings of the Philadelphia Academy of Natural Sciences," in which it was shown why grape vines grew better when running over trees than any where else. There was motion in the tendrils, and the amount of food required to produce this motion was a great strain on the nutritive function of the vine. This motion of a tendril in search of something to cling to continues for ten days or so, when it dies. If the plant is clambering over a tree, the tendril finds something to cling to almost as soon as it is ready for support. Then there is no waste of force in useless motion. The whole energy of the plant is spent on healthy growth.

It is remarkable that no use has been made of this discovery in practical grape culture. We still go on in the most extensive manner, failing day after day under our old systems—getting perhaps a three or four year crop—feeling that we have one of the best grape countries in the world; and then failing utterly and concluding as positively that our country is totally unsuited to grape culture.

Often people who live near us, call and say grapes cannot be grown in Germantown. We simply point to a vine from our office window, the picture of health and productiveness, which has been allowed to have its own wilful way. It is but twelve years old, and was planted near the root of a weeping ash tree, simply to help its drooping branches to make shade. It has covered the ash, gone over a 20-year-old Silver Fir, a White Pine, a Himalayan Pine, a Larch 40 feet high, and sundry other things; and there is no reason that we can now see why it would not cover any amount of low, bushy trees that could be got on to a quarter of an acre of ground. So is another, an Isabella, which was planted by a Morello tree. There it hangs with its hundreds of bunches, although it is looked on as a first class article of horticultural faith that the Isabella will "do no more good in these days in Germantown."

Now we do not recommend vines to go untrained or untrimmed over trees; but we do most certainly believe that a good *system* of tree culture of the grape would make the fortune of any one engaged in it.

We find by long experience, that it is no use to place truth before the people, and let it grow its own way; and we now give notice, that having by a long course of observation and study, and practical results, arrived at the certainty that this kind of a grape system is the only hope for our country, we shall cultivate this idea by all manner of means, and shall not allow it in future to be crowded out by rank weeds of any kind. We shall do for it as we have done for surface root culture: hold it up before the horticultural community at all sorts of times, and in all sorts of ways. We think this a fair notice to every reader of the Gardeners' Monthly, who does not want to have "*tree culture of the vine*" forever before him, to close his accounts with the publishers at once, and thus drop into his horticultural grave.

To-day we shall merely say, that in the warm climate of southern Italy, where the hot weather is so very much like our own, this system has been in existence for ages, and therefore we do not ask for the Germantown grape vines the credit of any new discovery. The first thing they do in planting a vineyard is to set out maple trees only four feet apart. These for the first year are trained so that arms shall come out at regular distances all up the trunk of the tree, as regularly as the branches come out on a Larch or Pine tree. By summer pruning these trees, they can be kept into low and permanent shape, just as well as an Osage Orange or Honey Locust in a hedge. The trees are rarely allowed to grow above fifteen or twenty feet high, but wine to the amount of a quarter to half a barrel per tree is the usual average. The second year

after setting out the tree the vine is planted against it. In order to give it a good chance against the tree, a two or three years old vine must be planted. Our "rootlings" would not do. The tree would starve and dry up. Not even in France and Germany, where the people are so enlightened, and read all the new ideas in the papers, have they anything like the success in grape culture, which rewards the toil of these ignorant Italians, not twenty per cent. of whom can read or write.

We fancy the great objection with Americans will be the amount of labor this system will call for. The trees as well as the vines must be fed, and hence top dressings have to be given every year. A lazy system suits us best. When we commenced to recommend grass for our orchards not a few jumped at it, as a system which would give them fruit for absolute neglect. Since they have come to learn that the surface root culture really takes more labor than the old deep culture plan, many prefer the old one of having a few large fruits once in a while on unhealthy trees, to continuous and regular average crops. It is so much easier to growl at the climate than to get the fruit of the earth by "the sweat of the brow."—*Gardeners' Monthly.*

For The Western Pomologist.

Missouri Valley Grape Growers' Association.

This Society met pursuant to a call, on the 15th of December, at 10 A. M., at the office of the *Western Gardener*, Leavenworth, Kansas, and organized by electing the following officers:

President—Z. S. Ragan, Independence, Mo.

Vice Presidents—J. Stayman, Leavenworth, Kan.; L. C. Clark, St. Joseph, Mo.

Secretary—David L. Hall, Kansas City, Mo.

Treasurer—Wm. Tanner, Leavenworth, Kan.

The following committees were appointed:

On Vineyard Sites—John Cadagan, J. Rivard.

On Vineyards—W. C. Gilpatrick, L. C. Clark, Chas. Byers.

On Wines—D. L. Hall, Wm. Tanner, J. A. Halderman.

On Varieties of the Grape—Dr. J. Stayman, Adam Durkee.

On Essays—Dr. W. M. Howsley, D. C. Hawthorn, A. G. Chase.

Ad Interim—J. Stayman, L. C. Clark, W. C. Gilpatrick.

The object of this Association is the cultivation of the Grape, and everything that appertains to the the interest of the grape-grower.

The following resolution passed:

Resolved, That this Society offer one hundred dollars for a grape that is equal to the *Concord* in hardiness, productiveness and for market, but superior to it in quality and for wine.

After a very interesting meeting, the Society adjourned to meet at Leavenworth, Kansas, in the Council Chamber, at 10 A. M., the second Tuesday (the 14th) of February, 1871.

D. L. HALL, *Secretary.*

Show of Grapes at Boston.

The Journal of Horticulture thus speaks of the show of grapes at the last annual exhibition of the Massachusetts Horticultural Society:

"Boston is not so much of a grape as a pear country; yet we think a record of the exhibition in this uncommonly favorable grape season will be of interest. 264 dishes were exhibited by 50 contributors, as follows: *Delaware, 26; *Diana, 22; *Concorn, 21; *Allen's Hybrid, 15; *Wilder (Rogers' No. 4,) 14; *Agawam (No. 15,) 12; *Iona, 11; *Isabella, 10; *Creveling, 9; *Israella, 8; *Rebecca, 8; *Adirondac, 7; Merrimac (No. 19,) 7; Massasoit (No. 3,) 7; Salem, 6; *Hartford, 5; Lindley (No. 9,) 5; Union Village, 4; Clinton, 3; Catawba, 3; Essex (No. 41,) 3; Barry (No. 43,) 3; Northern Muscadine, 2; Perkins, 2; Rogers' No. 1, 2; Rogers' No. 44, 2; *Martha, 2; Diana Hamburg, Cornucopia, Eumelan, Conqueror, Ives, Cottage, Telegraph, Rogers' No. 21, Rogers' No. 33, Blood's Black, Maxatawney, Merrill's Amber, Winchester, Framingham, Alvey, Lewis, Fedora, Post, Fancher, Nashua, Sage and Una, one each, and 23 seedlings. This list must not be taken as an exact, but only as an approximate index of the value of the different kinds. Eumelan and Martha, and other new kinds, will doubtless be more freely shown in future years, while Hartford would have figured more largely earlier in the season. A prize of $4 each was offered for the best dish of the kinds starred, and also three prizes of $4 each for the best dish of any other kind, which were adjudged to Salem, Barry and Catawba. Many of the specimens were very handsome; and we particularly noticed Ionas, Rebeccas and Barry as extra fine.

SOIL AND COLOR OF GRAPES.—An exchange says: "Our attention was called to the difference of color between grapes grown on clayey soils and those grown on gravelly soils. Those on the former were invariably darker and more glossy, and would be pronounced on a judgment rendered by the eye to be richer than those which had been grown on gravelly soils which were lighter in color and less covered with bloom. But the socharometer acidometer reversed these decisions, and showed that the richest grapes were those, which were not grown on clay soils.

GRAPES IN MINNESOTA.—The Minnesota Horticultural Society recommend Concord for general cultivation and reject the Clinton. For general trial Rogers Nos. 2, 4, 15 and 19 and layered vines of the Delaware; Iona rejected.

Annual Address of President Mathews, before the Iowa State Horticultural Society, at Des Moines, January 10th, 1871.

Ladies and Gentlemen of the Iowa State Horticultural Society: In meeting together at this Fifth Annual Anniversary of our State Horticultural Society, as an organization for the promotion of a Science which, according to the Bible History, is coeval with the creation of the world, and which in its onward march from that period to the present, has added so much to the health, wealth and happiness of all civilized nations, it is fitting that we, as a Society, and a portion of the people and citizens of our honored and beloved Iowa, should, first of all, express our unfeigned and de vout thankfulness to Him who is the bountiful Dispenser and gracious Giver of all our mercies.

During the year just gone He has blessed us with an abundant supply of food for man and beast. As a State, we have been prosperous beyond our most sanguine hopes. Our general improvements and material wealth have been greatly enhanced. We have as a people enjoyed unusually good health. While other States and nations have been engaged in deadly conflicts, and foreign countries, cities and towns have been literally deluged in blood, and afflicted with all the horrors of fire and sword, we have been blessed with uninterrupted peace and tranquility, literally reposing "under our own vine and fig tree, with none to molest or make us afraid." Hence, with all the manifold blessings of a common Providence surrounding, protecting and defending us from harm, we would be derelict in our bounden duty as good citizens and a Christian people, if we did not on this occasion express our thanks for the past, and implore the blessing and goodness of the Divine Being in the future.

The past year has not been one of a general good fruit crop throughout the State, on account of injuries resulting from the very sudden and severe freeze in the latter part of October, 1869, (which caused the death of many trees, and serious injury to others, even among the hardiest varieties), as well as from the unusual vicissitudes of the following Spring.

These injuries were experienced the most severely south of the middle portion of the State, where, as a general thing, only a partial crop was gathered, with the exception of grapes, which were abundant and of a superior quality.

In Northern Iowa the crops of all kinds were generally good, so that, taking the entire State together, there was not much less than an average production, and had it been equally distributed, I believe would have furnished almost, if not quite, a sufficient supply for home consumption. These diminutions of the fruit crop occur in all portions of the United States, and it is a gratification to be assured that in no locality are failures less frequent than in the State of Iowa, and especially those resulting from spring frosts. In this respect we are exceedingly favored.

After nearly sixteen years residence, I can state that in Marion county, (and I believe I am safe in saying the same for all the Southern counties), the fruit crop has never been once entirely destroyed by spring frosts, and only twice partially killed, last spring being the worst of the two exceptions. In most of the other States where fruits are grown to any considerable extent, the loss of the crops by frost, during or after the blooming season, is quite frequent, and constitutes the chief cause of failures or diminutions.

The past season having been quite favorable for the formation and full development of fruit buds, we may very reasonably anticipate a fair yield for the present year; and if so, necessarily a large aggregate increase over any former one.

In addition to other favorable indications calcu. lated to inspire new courage and zeal among the members of our Society in the work wherein we have "put our hands to the plough," and therefore should not "look back," I am happy to advert to one which I conceive to be of vast import, and which having been fairly inaugurated, will, if backed up by our Society, and the friends of Horticulture and fruit culture generally, give to us our true position, or proper status.

By the friendship and wisdom of the State Board of Trustees, their Committee on Organization, and the President of the Iowa State Agricultural College, we have now in that Institution not only a Professor of Horticulture, (which according to the true import of the term means *gardening*, and embraces garden-fruit culture,) but also a Professor of Pomology, which comprises fruit-culture in its most comprehensive sense. These are now taught in separate and distinct branches in a Collegiate Institution. Although for many years such a step has been discussed and urged by some of our best writers on Pomology and Horticulture, our young, but progressive "Little Giant" State, has the honor of leading off in a reform which, emanating from a source it does, augurs gloriously for the future, as Iowa never retrogrades or backs from any laudable enterprise she undertakes. Her destiny is onward and upward; radically progressive in every thing which has a tendency to promote the interests and elevate the character of her people. Why, I will ask, should not the rudiments and practice of Pomology and Horticulture be thoroughly inculcated in the minds of our Youth equally with any other Sciences? Can we adopt more forcible argument to prove the goodness of Providence, than by placing before young students the most healthy and beautiful products of our soil, attended by their various modes of culture, and thus guide them in a

way to appreciate Nature's most precious bounties, fostered by the ingenuity and industry of mankind? Would it not aid to extend and expand the youthful intellect, and often in a subsequent stage of life, become a source of health, happiness and wealth? Is there a more natnral and healthful product of the soil than our ripe fruits? Is there any which is more beneficial and congenial to our temperaments and constitutions, affording at the same time the most lucrative resources as professional occupations?

Should they not, therefore, each, form one of the branches of education, were it only with a view to encourage the love and knowledge of fruit-culture and gardening, that their paramount benefits may be widely and effectually disseminated throughout the country, while we are all so fully awake to our real interests and true happiness; these, largely consisting in our country's internal Agricultural, Horticultural and Pomological resources? In these, especially in this Western country, our tangible riches are centered; in these, our prosperity and wealth repose. Thus with a soil happily gifted, and propitiously irrigated; rendered unusually exuberant by the proper amount of warmth radiating from that glorious orb of light which shines so peculiarly refulgent over our free and happy commonwealth, have we it not within our grasp to possess nearly all that renders life most sweet and contented, without seeking after foreign products, or courting the results of other climes.

I will add, moreover, that so far as the Horticultural Department in our College is concerned, you may confidently rely upon the industry, energy and efficiency of Professor Bessey. He has already made his *mark*, by his practical work and personal superintendence of the garden last year, as well as by the progress of his classes in Botany and Zoology.

No encomium of mine would add anything to the luster of his character as an instructor and a worker.

As to the Professor of Pomology I have nothing to say. A brief past can speak for itself. The future will disclose the rest.

If these Departments in our Agricultural College shall become a success by their permanent establishment as Sciences to be taught in this and other similar Institutions, the same as Botany, Geology, Chemistry, &c., (all of which belong to Agriculture in its comprehensive sense,) then Iowa will have the credit and honor of having inaugurated a new era by the recognition of gardening and fruit culture as among the learned professions, and thereby elevated them to that point which will give such an impetus to scientific culture as will at least make Iowa, and this great West, one of the most productive and beautiful portions of the globe.

In the variety of matters which will necessarily occupy the minds and attention of members and others friendly to our Organization, and the cause in which we are laboring, I trust that the one in regard to an appropriation by the Legislature at its next session, may not be overlooked or forgotten.

In the infancy of the Society, with its limited number and an indigent treasury, we shall find it exceedingly difficult to sustain the Organization and effect that usefulness to which it is destined, upon our part, without a renewal of reasonable legislative aid. To secure this object, we should begin in *time*, to agitate the question.

Let each member in his particular locality talk the matter up to his immediate Representatives and Senators. I cannot think it possible, if the question is properly presented, that our request for a reasonable amount will be refused. The necessity is too apparent, and the objects too important to anticipate a denial, if the General Assembly are properly informed of the necessity and justice of our demand.

We are a legitimate branch of the great Agricultural interest of the State, which is represented by the State Agricultural Society, for the support of which the Legislature have been so liberal and magnanimous; and I am sure they will not be disposed to act less generously toward us in proportion to our necessities and usefulness.

In addition to the foregoing suggestion I would recommend that a committee be appointed who shall, by the time of our next annual meeting. have a petition prepared to present to the General Assembly, which will be then in session, pressing this matter in a formal way upon their attention.

I feel happily relieved of the necessity of directing your minds specifically to the various topics coming within the scope of our deliberations by the anticipated Reports of the various Committees to whom, on the recommendation of our worthy Secretary, last January, were referred the several Subjects, and which are to be reported upon and presented for your consideration now. These consist of

1. A Committee on Entomology.
2. Nomenclature.
3. Forestry and Arboriculture.
4. Apples.
5. Pears, plums, cherries and peaches.
6. Grapes and small fruits.
7. Experimental Horticulture.
8. Committee *ad interim*.
9. Premium Lists and duty of Judges.
10. Hedges.

The names of the persons comprising each of these Committees will be found on pages 65 and 66 of the Secretary's report for 1869.

As the subject thus referred, embraces about every conceivable topic which may come within the province of our debates, I do not wish to press my views upon any of them in advance, preferring

rather to leave the field open for free interchange of opinions resulting from your reflections and experiences, with a full conviction on my part, that in this way I shall gain much valuable information, while you will lose nothing for want of such suggestions as I might withhold on any debatable questions.

In conclusion, I take this opportunity to tender my grateful acknowledgements, and with the profoundest sentiments of my heart, thank the members of this Society for their uniform kindness and partiality towards me, since I have been associated with them. To me our meetings have been exceedingly pleasant and instructive, and the remembrance of them can never be effaced while time and memory shall last.

I wish it were in my power to do more for the noble cause in which we are laboring; but little as I may be able to accomplish, I shall cease not to toil side by side with you in my humble way, and with what little strength of body and mind I may possess, till my last work is done, and when it is about being consummated I would desire to exclaim in the sincerity of my heart:—

"Give fools their gold, and knaves their power,
Let fortune's bubbles rise and fall;
Who sows a field, or trains a flower,
Or plants a tree, is more than all.

And soon or late, to them that sow,
The time of harvest shall be given;
The flower shall bloom, the fruit shall grow,
If not on earth, at last in Heaven."

Peach Growing in Maryland.—A correspondent of the Journal of the Farm, writing from the peach growing districts of Maryland says: "Very many of our farmers, who formerly gave their whole time and attention to the ordinary crops of the farm, such as wheat, rye, &c., have given it up, and gone into the peach business. A large number have already planted trees by the thousand, and regard them as their principal source of revenue. From this section—Cecil and Kent counties—a portion of which borders on the Sassafras River, the peach trade is large and rapidly increasing. There is annually shipped from this river alone, between five and six hundred thousand crates, containing nearly a bushel each. These crates average the growers from eighty cents to one dollar each, clear of all expenses. Three-fourths of the fruit goes to Philadelphia."

Saving the Plums.—J. J. Thomas, N. Y., has a plum orchard of eighty trees. Previous to 1866 he had obtained but very little fruit from the whole orchard on account of the curculio. Since then he has saved the fruit by jarring down the insects on sheets. An iron spike is placed in each tree on which a sharp blow is struck.

Tree Planting.

The season for transplanting is near, and to assist those of limited experience in such work, we propose some plain, practical directions, and in which we must, of necessity, repeat much that we have said before. No doubt many of our readers are new settlers in the West, and are seeking just the information we propose to give, and, in fact, there is often need of the repetition of old truths and facts to refresh and stir up the minds of the careless and neglectful—such as need line upon line and precept upon precept.

In the commencement of an orchard, the location, aspect and preparation of the soil, are matters of primary importance. The worst soils the orchardist has to deal with, are those of a level, heavy, wet texture. Rolling land and hill-sides, on some accounts, are considered the most favorable sites. They are naturally drained of surface water, and are less frosty than low, level land. Aspect is of minor importauce. Some planters prefer a gentle slope to the southwest; others an opposite direction, &c. Our preference is a slope or hillside to the southeast. "Deep valleys, with streams, should be avoided, if possible, as in such places, frosts are apt to prove fatal." But any good land will answer the purpose, whether rolling or level, if naturally dry or under-drained, so water will not rest long on the surface, or about the roots of the trees. No satisfactory result can be realized where surface water will not readily pass off. The importance of thorough drainage can not be too strenuously urged. It is well known to every observing farmer, that no crop can be successfully grown on land that is subject to a surplus of surface water that stands for days fermenting and souring.

Preparation of the soil chosen for the orchard is contingent upon its condition. But, be that what it may—level, rolling, naturally wet, or dry—it should be thoroughly stirred to the depth of twelve to eighteen inches, and well manured, if deficient in vegetable matter, as is generally the case with hill sides. Such soil needs enriching for fruit trees no less than to produce a first-rate crop of corn. It is folly to suppose that ordinary soil for fruit trees needs no enriching. An Eastern farmer was once asked why his apples were so much superior to those of the same variety raised by his neighbors. "Because," he responded, "I fatten my apples by enriching the soil around the roots of my trees." Liberal application of wood ashes will produce the most beneficial effects upon the growth and health of orchard trees and vines, whether the soil be rich or poor. Ashes can scarcely be used to excess in the orchard; apply broadcast upon the surface about the tree, as far as the roots extend, and partially work into the soil. The application of half a bushel to a bushel to a tree, for five or six years,

extending it annually, so as to cover the roots, will produce astonishing results in the growth and fruitfulness of the trees.

Ground, whether level or rolling, with a subsoil retentive of water, should be stirred as before specified, and then thrown into ridges. Make a land of the space between each of the intended rows, and plow towards each row until broad, permanent ridges are formed, some eighteen inches higher than the bottom of the dead furrows between the rows, as represented in the accompanying cut.

RIDGING UP.

This arrangement of the surface should be a permanent feature of the orchard for all time. To attain it, after-plowing should be in the same direction of (never across) the ridges and dead furrows—plowing alternately to and from. The trees, of course, should be set in straight rows across the broad ridges, and should also stand in rows across the ridges. For convenience in cultivating, after the preparation here described, the trees should not be less than twenty-feet apart along the ridges.

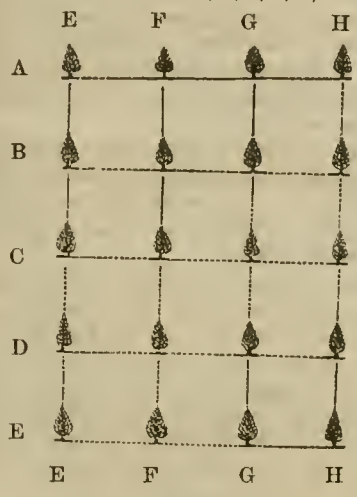
Under-draining and deep tillage, next to mulching, are the best preventives of drouth. Lands deeply drained and deeply pulverized, possess an increased power of absorption—attracting and retaining an increased amount of moisture, whenever the atmosphere is in a humid state. "Such lands also suffer less, in many seasons, from excessive moisture—for the same qualities which enable them to absorb moisture when there is a scarcity, enable them to throw it off when there is a superabundance."

Under-draining excites early growth and maturity of the wood of fruit trees, by the soil being much earlier drained in the spring, and warmed to a degree necessary to stimulate vegetation. With such vigorous, early growth, the trees harden up their wood nicely for winter.

LAYING OUT THE ORCHARD.

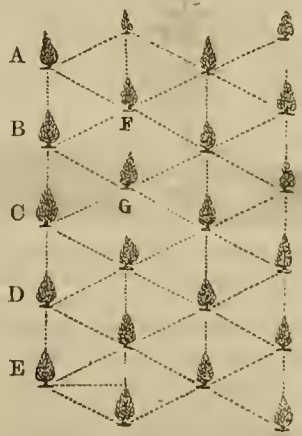
As a general rule, but two forms need be studied in laying out an orchard—the Square, made up of four, one standing at each corner; and the Quincunx, or form of five. The latter has the advantage of distributing the trees more equally over the surface, and thus economizing space, and is more ornamental.

To lay off the ground in the Square form, draw a straight line for the first row. Then, with a surveyor's chain, or a tape-line, proceed to space it off for the trees, and place a short stake firmly where a tree is to stand, A, B, C, D, E. This work cannot be done accurately with a common line, as it is liable to stretch more or less at each measurement. Then at right angles from the first line, measure off and stake a line from each end, E, F, G, H, and E, F, G, H.



SQUARE FORM.

Between the last two stakes in the end rows, measure off and set a line of stakes which will be parallel and opposite to the first row. The interior space of the plat should then be measured off, and stakes set to indicate the exact point where each tree is to stand. To have an orchard pleasing to the eye, the trees must be accurately arranged. A single tree out of line makes a deformity.



QUINCUNX FORM.

To obtain the Quincunx form, lay off the first row, A, B, C, D, E, as before. Next, hold one end of the line on A, and describe an arc in the direction of F; then from B to F; the intersection of the two arcs will indicate the point F, where the first tree in the second row is to stand. Proceed in the same manner, describing arcs,, from B to G, and from C to G, and until the stakes are all set for the second row. The points for the trees in each additional row will be indicated by the ranges and measure-

ments, as will be readily comprehended by a glance at the cut.

The line must be held firm and the stakes upright, while the arcs are described. Other methods have been given to the public, through the press, but we have found none so simple and so easily exccuted as our own plan, as here given.

If a surveyor's compass is used, the angle B, A, F, and A, B. F, is 60°; and the form is made by laying off a succession of equilateral triangles from the base A, E, and so on, placing the stakes in the points or corners of the triangles.

If the trees were to be set twenty-five feet apart, the rows A, E, and F, G, would be twen-one feet and nine inches apart, instead of twenty-five feet, as in the square form. Each tree would occupy five hundred and forty-four feet. In the square form, six hundred and twenty-five feet of surface. Or eighty trees should be planted to the acre, against sixty-nine to the acre if planted in the square form, and each tree stand just twenty-five feet from each other of its neighbors in both cases.

When ready to dig the holes, the stakes must be removed. But afterwards they must either be re-set or their exact position indicated by some device, by which to set the trees. It is a good deal of trouble to re-set the stakes, or to sight the trees to get them in line. To avoid this use the Tree Planter.

To make this planter take a straight-edged board, six to eight feet long, six inches wide, and a half inch thick; cut a notch at the center of one edge, and at each end, equi-distant from the center notch, make a similar notch on the same edge. Lay the board on the ground, and place the center notch against the stake where the tree is to stand, and stick down a small stake in each of the end notches. The center stake and board may then be removed, and the hole dug. When ready to set the trees, the board is placed over the hole, with the end notches against the two stakes. The center notch will indicate the precise point where the tree should stand, and at the same time help to steady the tree while filling in the soil about the roots. This simple and useful contrivance is an invention of our own, many years ago, and enables the workman to plant each tree of a uniform depth, and in the precise position indicated by the stake.

The following table shows the number of trees or plants that may be grown upon an acre of ground from 1 to 24 feet apart:

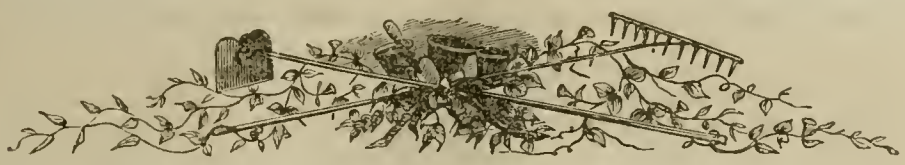
FEET.	TREES.	FEET.	TREES.
1	43560	13	257
2	10890	14	222
3	4840	15	193
4	2722	16	170
5	1742	17	150
6	1210	18	130
7	889	19	120
8	680	20	108
9	537	21	98
10	435	22	90
11	360	23	82
12	302	24	75

The ground having been made ready for the trees as specified, the next step is to prepare the holes for their reception. They should be dug of sufficient depth and breadth to receive all the roots of the tree, without crowding or bending them un-naturally, and the bottom soil made mellow some inches deep. The hole being ready, take the tree, and with a sharp knife prune the ends of all the roots, from the under side, with a sloping, upward, clean, smooth cut. Planted in this condition, the ends of of the roots will speedily callous, and push out therefrom a new system of roots, much sooner than if left roughly cut by the spade.

The tree should be placed in the hole, upon the mellow soil, so as to stand four to six inches deeper than in the nursery. It should be held by one person, while another arranges the roots in their natural position, and with the hand work in mellow soil among them. As the filling up progresses, give the tree a slight movement up and down, to more thoroughly work the soil in among the roots. Great care should be taken to keep all the roots in a natural position when packing the soil around them.—After the hole is full, and the soil pressed down and leveled up, the work should be finished by adding a thick coat of mulching.

If the ground be dry at planting time, a liberal use of water is all important. Thoroughly saturate the soil about the roots as it is packed in. In fact, we advise the free use of water in setting trees and vines at all times—without regard to condition of soil—wet or dry. The roots are more thoroughly imbedded in the soil. No work about tree planting pays better.

Cultivating the Poppy.—The South is beginning to talk about cultivating the poppy and going largely into the opium trade. Not long since a Louisiana farmer tried the experiment, raising poppies enough on seven acres of ground to yield him 140 pounds of marketable opium. This he sold at an average of ten dollars per pound. The example has set the Southern farmers to thinking, and they are urging that this is better than raising either cotton or sugar.



The Vegetable and Flower Garden.

The Raspberry—Best Sorts and Cultivation.

The raspberry is of the easiest possible production, now that we have sorts hardy and otherwise suited to the West. No fruit is more wholesome and refreshing. It comes in on the tail end of the strawberry—the warmest season of the year, and when fresh, ripe fruit is most needed and relished. Strange it is, that so few farmers have a raspberry patch.

The raspberry does best in a moist and rather shaded locality, as for instance, on the north side of a fence, or what is better, on either side of a north and south fence. If grown in such a situation, set the plants in a line two feet from the fence and four feet apart in the row. Parallel with the row of plants, and at a distance of two feet, set stakes three feet high; to the tops stretch a wire, or fasten very small poles, or narrow strips of boards. For garden culture there is no better arrangement. The canes and fruit are partially shaded, are protected from wind and kept in place. For field culture set the plants in rows six feet apart and four feet in the rows.

As to culture, if managed right—the soil well worked, eight to ten inches deep, made rich with manure and the surface mulched, large crops of fruit may be expected, whether partially shaded or fully exposed to the sun. The roots of the raspberry naturally ramble about near the surface hence the necessity of mulch to protect the plant from the effects of drouth.

Set the plants early in the spring, the earlier the better, let them grow at random the first season, and the following season they will produce quite a crop of fruit. The new canes that spring up annually, and upon which the next season's crop of fruit is borne, should be pinched off when about three feet long to induce a growth of latteral canes. As soon as the crop of fruit is gathered, all the old canes and the feeble new ones should be cut out at the ground, and carefully removed to give the new canes strength and firmness of growth.

As to sorts, we regard the Doolittle, Philadelphia, Purple Cane and Golden Cap best, and comparatively, in the order named. They are the only varieties we can recommend for general cultivation in the West. Clark, Mammoth Cluster, and Miami are receiving more or less attention, but in popularity with Doolittle are yet in the back ground. We regard the Doolittle among raspberries as we do the Wilson among strawberries, the best and most profitable of their classes of fruits for the market. Purple Cane is the highest flavored berry, but too small and tender for market. It is very juicy, sweet and delicious, and should have a place in every family garden.

For the Western Pomologist.

The Garden—Begin work.

By Prof. C. E. Bessey, Iowa Agricultural College.

Though now the ground is covered with snow, and winter seems as strong as ever, it is by no means too early for the farmer who intends raising a little "garden truck," and the practical gardener, to be looking about, and at least getting ready for work. There is nothing like going at anything with a definite plan, and now that we cannot go out into our gardens to work, we can employ our time profitably in planning for the spring and summer's work. Everybody is supposed to learn something from year to year. Now let every gardener put down what he learned from last year's work, and in planning for this year take that into consideration. Don't be too hasty however, in drawing conclusions; dont consider a crop a certain failure because the drouth killed it last year. My celery didn't come up *until August* last year, but still my faith is strong, and I shall try it again this season, and confidently expect to be able to put on our table as fine an article as may be found at any place in the East.

But for our planning. How much of any particular crop was raised last year, and what was the demand for it? Cabbages, perhaps, early in the season were high; increase your number of early cabbages for the season. Tomatoes, in your market, maybe, were plenty, and consequently a drug. decrease your tomato crop—and so on. But don't rush from one extreme to another; do not, because of the high price of early cabbages last year, plant your whole garden with early cabbages, and nothing else.

And then what of the insects? Many of these may be kept in check by moving crops about, that

is, if your cabbages were attacked by worms on one plot of ground last year, try to avoid them this year by planting in another portion of the garden, and putting some other crop in the place where the cabbages were. You can not entirely rid yourselves of these pests in this way, for insects *will fly*, but then you will be much less likely to be troubled than if you put your plants right in their way.

Tools need looking over. Perhaps this was done in the fall, when you put them away for the winter; if so, they will need but little attention now, but too often they are put in the tool room in the condition left by the last using, damp and not properly cleaned. Such ones will now be found beautifully covered with red rust, and will afford an excellent opportunity for using up several sheets of sand-paper, and several hours of hard work.

Some tools were broken during last season. Such need either to be mended, or replaced by new ones. And then perhaps some new implement has come out which is, or is likely to be a success. If it is what you need, get it, but *not* on some traveling agent's extravagant recommendation. Remember that good tools, like good men, never need to employ agents to travel the country and proclaim their merits.

About the same may be said of seeds as of tools. Overhaul your stock on hand, reject all which proved not pure last year, or which will not do for planting this year. Make out a list from the catalogues of your seedsmen of such as you want, choosing in the main only standard sorts, and then add cautiously a few packages of the new "unrivaled" and "unexcelled" varieties.

Should the spring prove to be of ordinary earliness, a hot bed should be in operation before the close of March. Are your sashes in good order? Perhaps they need painting, and it is almost certain that they need a pane or two of glass. How is the manure accumulating from which you expect to derive heat? A little attention now to these matters will save much valuable time from three to six weeks hence.

And now a word to farmers who have never yet used a hot bed. Do not deny yourselves this convenience longer. There is no need of making one like those figured in most seed catalogues, or horticultural books; such ones are somewhat expensive, and besides are larger than you want, perhaps.

Take an ordinary six-light sash, putty in the glass to make it tight, and fit it to a rough, but *tight* box, so that while it can be easily taken off, it will at the same time keep in the heat; this box should be about eighteen inches high. Place this one inside another, about a foot longer each way. When you are ready to make your bed, dig a hole in some sheltered place, large enough to admit the larger box and a foot or so in depth; fill with horse manure well packed down, then set on your two boxes, and fill the space between them with manure also. Put in earth to the depth of five inches and put on the sash, and treat as the books tell you the larger beds. In this way you can raise early plants as well as in larger beds, and have the satisfaction of knowing that they have not cost more than they are worth.

Garden Work for March.

Asparagus, sow seed, plant roots, manure old beds. Beets, sow Early Bassanno and Early Red Turnip. Cabbage, sow in hot-bed Early York, Winnigstadt, and Early Dutch.

Carrots, sow Early Short Horn and Early Scarlet Horn. Horse Radish, plant sets. Lettuce, sow in hot-bed Early Curled Silesian, Royal Cabbage and India Head. Onions sets plant out Leavenworth Red and White Top, and sow seed of Wethersfield Red and Yellow Danvers.

Parsnips, sow Large Sugar. Peas, sow Extra Early, Tom Thumb and Carter's first crop, which is a few days the earliest, but McLain's Little Gem is nearly as early, and much the best in quality.

Potatoes, plant Early Rose, which is the best. Radish, sow French Red Turnip, Red and White Turnip, also the Red Olive and Long Red Scarlet.

Rhubarb, divide the roots and set out in very rich soil. Sage, sow seed. Tomatoes, sow in hot-bed Extra Early and Fejee and Large Smooth Red; try also the Trophy.

Egg Plant, sow seed of New York improved or large Purple in hot-bed; also Celery and Large Sweet Pepper.

Turnips, sow Early Flat Ducth. Leeks, sow.

The Trophy Tomato.

This new variety of the tomato is highly extolled by those who gave it a trial last season, and as these expressions are unanimous from all quarters, and from parties, so far as we can discover, entirely disinterested in a pecuniary way, we cannot but think the Trophy a new and valuable sort. We are very cautious about the recommendation of new things, but from what is said of this new tomato, its superiorty seems to us beyond question. Mr. A. M. Purdy, who has made the growing of small fruits (not seeds) a specialty for many years, writes to the Rural New Yorker:

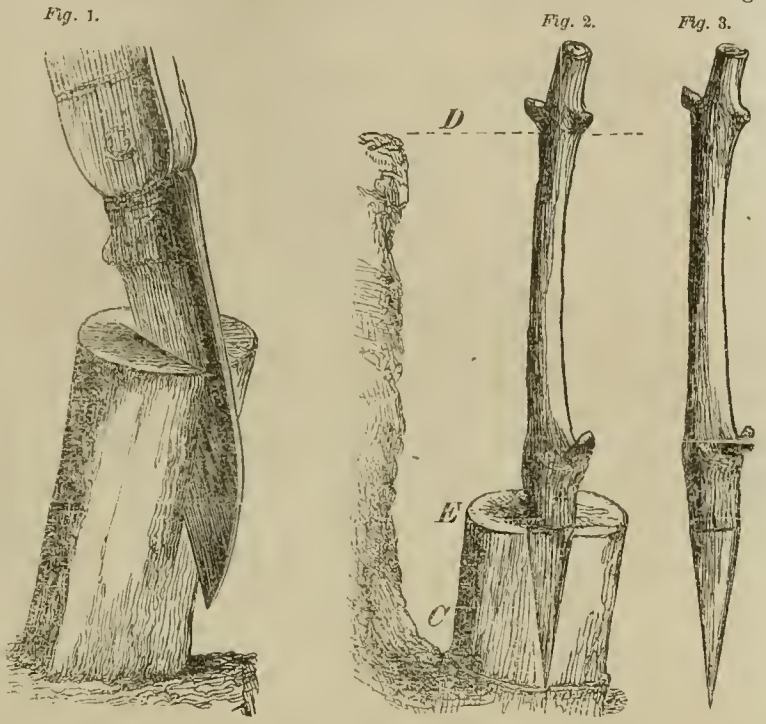
"I consider it without exception the best and most perfect tomato I have ever grown. 'As heavy as a stone,' is the expression of those who have seen it. Certainly I have never seen anything to equal it in size, beauty, uniformity, solidity and goodness. In cutting it one is reminded of an old cheese. There are no open cavities in it. The slices, when cut and laid upon a dish, are as perfect as the slice of a potato; the flavor sweet and delicious; the *average* weight is fully one pound each, many weighing one and a half to one and three-quarter pounds."

Vineyard Work for March.

By the Associate Editor.

Everything should be ready for the vineyard as this is a very busy month with the vineyardist. Vines not previously pruned should be attended to at once before they commence to bleed. Cuttings can still be made; they should be cut about eight or ten inches long and set as soon as the ground is open; but to insure their growing they should be set in rich, well-pulverized soil, so firmly that they can scarcely be withdrawn.

Grafting must be attended to as early as the frost leaves the ground. You should cleft graft below the surface of the ground—all the directions for which with diagrams were given in Vol. 1. For the convenience of new subscribers not in possession of that volume, we will re-produce all the particulars there given, with the diagram:



EXPLANATION TO ILLUSTRATION.

Fig. 1. A graft natural size and length sloped ready to insert.
Fig. 2. Manner of splitting stock, showing knife drove full depth.
Fig. 3. Graft inserted and the earth removed. E to C showing the outer bark taken off the stock and cion as far as inserted; D showing the earth line when filled up and completed.

To succeed well the stocks should be at least two years old. Take the earth away from around them about four inches deep, and cut the vines off at a clean smooth place about two inches below the surface of the ground. They should be grafted soon after cut off and not exposed to the wind, sun or air long.

It not immediately grafted cover them over with earth until you are ready. Cut the top of the stock smooth and then *peel off all the loose bark* (leaving none but the inner, thin bark) around the stock as low down as the graft goes; split, or rather cut the stock by holding the knife (which should be straight on the edge) nearly perpendicular on the side you wish to insert the graft, and strike it gently with a light mallet until you cut it deep and low enough to set the graft, but be very careful not to cut through to the opposite side; then with a very narrow iron wedge, thickest on the outside, drive it gently until you open the stock wide enough to set the graft, but not so as to split it through to the opposite side. If the stock is small use small or thin cions, cut them with two or three buds if short-jointed, (if scarce, one bud will do provided there is length of wood below the bud of two or more inches) *peel all the loose bark off*) leave none but the thin inner bark) on the end so far as inserted in the stock; wedge the graft so it will be the *thickest* on the *outside* to exactly fit the split and match the stock; place the graft in firmly so when the wedge is removed the stock will hold it securely without tying, with the greater pressure on the outside of the graft (use no wax). If the stock should split through, cut it off and try again; if careful, this will seldom happen; pack the earth around the graft firmly and let but one bud be level with the surface (never below); if too high, mound up to the bud. In case you cannot cut off under the ground, the graft can be inserted above, using the same length cion, and bank up the earth firmly to the upper bud.

It sometimes happens in old wild vines, as well as those cultivated, that the roots branch out at or near the surface of the ground. In such instances were we to cut them off below the surface roots we

would lose the full strength of our stocks, therefore in such cases it is best to cut them off above these roots but as near to as convenient and graft the stocks there and bank up as before mentioned.

If the grafting is done early in the spring it is best to cover the graft several inches with earth and let it remain until all hard freezing is over, otherwise the frost might lift the grafts out of their places. When all danger is over remove the earth and let the upper bud expand. Never allow a bud to be in a hole to fill with water and mud. Watch and keep the suckers down or they will soon rob the graft. Cultivate well and protect the grafts by tying them up to stakes as fast as they grow. The earlicar the work is done the better.

If stakes are used they should be on the ground and set as soon as convenient, and the fruiting canes tied to them, for the bow or spiral system it require one or two stout stakes for each vine, but for horizontal training it requires from three to five stakes to a vine (in proportion to the length of the arms), but they can be of much less size, and about five feet and a half long. The arms should be tied firmly to the stakes horizontally with willow.

If a trellis is to be erected, everything should be on the ground so the work can be done in good season and the vines tied to the trillis before the buds start, as they rub off very easily in handling. Canes intended for layering should be shortened to about four feet in length, and let lay on the ground until the shoots have made a few inches growth, then make shallow trenches the length of the canes about three inches deep and lay the canes in, and as the shoots grow, fill up with pulverized soil. The ground should have been thoroughly stirred previously so the weeds cannot get a start of the layers; each bud will make a good strong plant in a good season.

Our Apple Trade with England.—The *Pa Mall Gazette* says: "It seems that a new trade has sprung into existence between Liverpool and the United States, and is daily assuming greater proportions. Some few years ago the quantity of apples brought as freight into Liverpool was comparatively small, but at present it appears as though they were to form one great feature in the business of the port. A Scotch paper mentions that one of the largest importers of apples at Port Huron, Michigan, has been in Liverpool for some time, and has just returned to his home, after having contracted for the delivery in Liverpool of 10,000 barrels of the best Michigan apples. It is said he will clear about 5s. on each barrel. One singular fact in connection with this new addition to the commerce of Liverpool is, that large quantities of the apples thus sent to Liverpool are trans-shipped to the Mediterranean in exchange for other fruit.

Entomology.

Dr. S. H. Kridelbauou, Editor, Clarinda, Iowa.

☞ Send in the Insects.—Dr. R. is chairman of the Committee on Entomology for the State Horticultural Society, and would take it as a favor to be furnished with specimens of insects from the various localities of the State, by mail during this year. Those sending will please state all they know concerning the habits of the insects sent; what they are found feeding on, etc.

Onion-Flies.

Of this species of insect there are two much alike in their appearance and habits, yet there is difference enough to easily distinguish one from the other.

For several years past we have been some, though not a great deal, in the West, troubled with the "Native American" species—the Black Onion-fly, scientifically named by Weidemann, *Ortalis flexa*, who described it as long ago as the year 1830, as belonging to the genus *Trypeta*, and afterwards by Mr Walker as *Trypeta arcuata*, but afterwards removed by Mr. Loew to genus *Ortalis*, and is now specially recognized as *Ortalis arcuata*, of Walker.

The fly is about 33-100 of an inch in length; color blackish, with three oblique white stripes on each wing. The wings of the *O. arcuata* point obliquely backwards, outwards and upwards—flight not rapid or prolonged, but irregular, jerking and fanlike. During the day they fly around among the onions where they deposit their small whitish eggs, which are very similar in appearance to fly-blows, so frequently seen on fresh meat in warm weather. The egg is small—3-100 by 1-100 of an inch in length and width. In from twenty-four to thirty hours after the eggs are deposited on the bulbs at a point near the base of the tops, they hatch out and are small living larvæ or maggots—the length of time varying some, however, with the temperature of the weather. The larvæ, which is of a whitish color, as soon as hatched make their way down between the layers of the bulb, eating as they go for a period of about fourteen days, when they will be full grown. The larvæ of this insect is more slender at the forward (head) than at the back (tail) end, which latter end has the appearance of being cut off.

When the larvæ attain full growth they pass the first transformation into pupæ, in which state they lay in the ground about as long as they were feeding in a domant condition; at the end of which time, (which is about four weeks from the laying of the eggs), they come out perfect Black Onion-flies—*Ortalis arcuata.*

At the commencement of cold weather all the flies die, while the remaining larvæ pass into pupæ, and lay in a dormant condition in the ground until the return of warm weather the succeeding

spring, when they send forth flies again, (thus perpetuating their species from year to year,) just in time to deposit a new supply of eggs on the crop of small onions.

We shall take up the foreign Onion-fly in the next number.

Grape Vine Flea-Beetle.

When the warm days of spring time come this little grape vine pest will come out from its hibernating places, and commence its work of destruction on the unopened buds, by scooping them out as neatly as the carver of wood could do with a gouge. It is at this time this insect does its greatest harm, and as it makes its hiding places in the cracks of stakes, and under the loose bark of the vines, and in the rubbish in the vineyard, would it not be well to take advantage of it by whitewashing the stakes, and raking up all rubbish and removing it to a convenient place and burning it up?

This insect is known among entomologists by the name given it by Prof. Illiger, as *Haltica chalybea*, and is often called Steel-blue Beetle—sometimes "Thrips." Neither of these two latter names are sufficiently characteristic—hence they should never be used. Its colors vary from steel-blue to metallic green and purple.

The full grown beetle is about one-eighth of an inch long, and very active and lively in warm weather. In cold weather it is sluggish—torpid. As soon as the leaves begin to open it quits feeding on the buds and feeds on the leaves, where it also deposits its orange colored eggs in small clusters. Soon these eggs hatch into dark colored worms (larvæ) and are found on the upper surface of the leaves the last of May and first of June. Here they feed about one month and then go down to the ground and bury themselves, forming small egg-shaped cells, from which in a little while longer they come out perfect Beetles, and feed the remainder of the season on the leaves. But one generation of them is bred each year.

In all localities where the Alder (*Alnus cerulata*), and wild grape vines grow, this insect is found. It is said to be very general throughout the United States and Canadas. The work of this insect is witnessed on the grape vines in many parts of the Northwest, more or less every season, by the numerous holes eaten through the leaves, which s metimes amounts to almost a total destruction of the leaves, if we except the larger leaf-ribs.

To sprinkle, or rather dust the plants with quicklime, while the dew is on, is said to effectually destroy the larvæ.

THE FLOWER TRADE.—The Horticulturist says that the whole amount of flowers sold in one year in New York city is nearly one million dollars' worth. Over one-seventh, or $150,000 worth, are sold during the Christmas holidays.

The Western Pomologist.

Heading off the Canker Worm and the Apple Tree Borer.

Among all the insect marauders that prey upon the orchard, the Canker worm is the most persistent and destructive. It is said to have made its first appearance in this country near the close of the last century. For many years its prevalence appears to have been confined to the New England States, but for the last twenty-five or thirty years it has been slowly working its way westward, until now it has become generally known in this part of the country. In dealing with this pestiferous customer, experience has fully demonstrated that the old adage, "An ounce of preventive," &c., holds good to the letter. It is no easy matter to destroy the worms, or even to check their operations. The best course of warfare to pursue is, to prevent their getting possession of the tree, which may be most effectually done by preventing the ascension of the female moth.

THE BANDAGED TREE.

The moths come forth from the ground very early—in this latitude about the first of March, according to the season—and continue to rise for three or four weeks. The wingless female instinctively makes her way to the trunk of the tree, and reaches the top by crawling up while the winged male ascends by flight, where they meet and pair. Soon after, the female deposits her eggs, which, when the buds open, begin to hatch. The worms feed voraciously upon the foliage, and not unfrequently take the tender fruit with it. Now, keep the female moths from ascending the trees and there will be no worms, and it may be done with very little labor, or expense otherwise.

FEMALE. MALE.

The male and female moths bear no contrast in appearance. The male is a slender-bodied, delicate gray moth with silky wings, while the female is wingless, with a much larger body, as shown in the illustrations.

Encircle the trunk of the tree with a bandage

six to eight inches in width with strong wrapping paper. If there is any rough, loose bark on the trunk, first scrape it off; draw the paper snug and fasten it top and bottom with twine or tacks. Give it a coat of gas or other kind of tar. Thick sorghum, or the refuse skimmings, will answer the purpose, but requires renewal oftener. If used, it may be applied directly—the paper bandage dispensed with, for *its* contact with the bark will work no injury to the tree. The tar must also be renewed often, as the weather hardens it. We believe a mixture of tar and whale oil well incorporated by heat, will keep fresh much longer than clear tar of any kind. It is said that india rubber dissolved in whale-oil over the fire, will last a long time without renewal.

We believe the bandage may be applied to the tree in a way to answer a double purpose—heading off both the canker worm and the apple tree borer. The beetle of the borer deposits her eggs on bark close to the ground. Put the bandages close down, haul the dirt up an inch or two above its lower edge, and the beetle is shut off from its usual place of deposit. In such case it *may* go above the bandage to do its work; but if so, the young larvæ is likely to perish, for we doubt whether it can penetrate the hard, dry bark above the surface. We always find its entrance below the surface, where the bark is tender and succulent. At all events, the eggs or larvæ can be much more easily detected and destroyed a foot or two above ground than an inch or so below. The bandage will be just as effectual, concerning the canker worm, as if placed a foot or two above.

The Entomological editor will soon prepare, with illustrations, an article on the history and habits of the canker worm. In what is said at this time, we have only endeavored to tell the reader how to manage it.

Iowa State Horticultural Society.

The fourth annual meeting of this Society was held in this city, January 10th to 13th. The attendance was fair, but not what it should have been. But few, comparatively, were present of those in the State who make tree and fruit growing rather a specialty, to say nothing of the thousands of farmers who give more or less attention to fruit growing. But what struck us still more forcibly, was the absence of so many of the fruit growers and gardeners living within an hours' ride of Des Moines, and who, if we may be permitted to judge from their works, manifest a lively interest in the subject of horticulture.

The meeting was called to order by President Mathews, when the Mayor of the city, Hon. J. H. Hatch, gave a cordial welcome to the members of the Society. A suitable response was made by the President, who then delivered his annual address. Following, the annual report of the Secretary was read, and reports from the ad interim committees. The balance of the session was taken up in the discussion of horticultural topics and the reading of essays, all of which will be comprehended in the forthcoming volume of transactions for the last year. In the discussion upon the various topics considered, little or nothing was developed not previously elicited at former meetings of the Society.

Peach Growing in Winter.

The editor of the Massachusetts Ploughman gives the following account of a visit a few days since to a peach-house in the vicinity of Boston:

The peach-house is fifty feet long by twenty wide, heated when necessary by hot water and steam with a simple apparatus costing but $112. The roof is glass, the chief item of expense, and that not large. The house is filled at the present time with peach trees in pots, most of them perfectly covered with blossoms, though some had just passed the blossom, and had "set" an abundance of fruit. One or two Itea Crawford's were quite loaded with flowers in full perfection. These fruits are three years old from the bud, and bore a large crop last May and June which sold, those not wanted by the family, at a large price. They stood out through the summer requiring only an occasional watering. In November they were removed to the cellar for a short "nap" and after about thirty days' rest were placed in the peach-house about the first of January when the mild heat was started up, and for ten days past the whole have presented one mass of flowers quite georgeous to behold.

To make sure of fruitification in the absence of wind and insects, Mr. Gibbs goes over his trees when in blossom, with a fine camel's hair brush distributing the pollen, a process which occupies but little time, and is attended with complete success..

Keeping Apples in Saw-dust.—Saw-dust is said to be an excellent material for packing apples in for preservation, and we are inclined to believe it true. Last fall we packed a few Ben Davis and Wagner apples in dry saw-dust—made as dry as it could be by thorough exposure to the sun and air. Just saw-dust enough was used to fill up the interstices between the fruit. The box was placed in a dry, well ventilated cellar, and elevated about three feet from the ground. At present (Feb. 25,) the apples show a remarkable degree of preservation and improvement. They have colored up more highly than any specimens of the same varieties that we have ever seen. They are as firm, fair, sound and plump as at the time of packing, while the Wagner, stored in the usual way, is past its season, in fact gone.

ED. POMOLOGIST: The leader in the Jan. POMOLOGIST *apparently* convicts me of plagiarism in a former article, in which I announce as *my own discovery* the importance of husbanding the *vitality* of trees when they are transplanted by *avoiding* the *usual* trimming recommended by all of the best and most experienced horticulturists, and especially my expert friend Moulson, of Rochester, whom I cited and ventured to criticise (although a novice myself.) Now it appears (*for the first time to me*) that I am sustained not only by your able pen, but by a predecessor!—who is also an M. D., and no doubt reasoned from some principles in *animal* physiology. My plan of "trimming by strangulation"—especially the pear, and particularly those varieties subject to blight--I still think most valuable. And also the *medium* course I suggested rather than either extreme. Yours faithfully,

DAVID STEWART, M. D.

Port Penn, Del., Jan. 31, 1871.

REMARKS BY ASSOCIATE EDITOR—In our leader on pruning we did not intend to charge any person with plagiarism. We simply condensed the results of our experience, and wished to give them to our readers. All close observers will no doubt come to the same conclusion, irrespective of what others say.

It is a law of mentality that the same ideas originate simultaneously under like conditions.

HORTICULTURE IN COLLEGE.—The Trustees of the Massachusetts Agricultural College, in their last annual report to the State Legislature thus remark upon the horticultural department of the institution: "The horticultural department is prospering. The most urgent want is glass houses, at a cost of $3,000, the expense of which might be defrayed by the sale of plants, flowers, and vegetables. This would save at least $1,000 per annum to the treasury, and render the instruction in horticulture much more practical and useful than it can be at present."

CALIFORNIA FRUIT.—The Scientific Press says: "The shipments of California fruit to Colorado, the present season, have aggregated 750 tons, made up of apples, pears, plums, grapes, etc. The aggregate value of the same is put down at $57,000—this to Colorado alone. Nevada and Utah have also taken immense quantities.

"The shipments to Chicago in 'refrigerator cars' have also been very large, and been attended with much greater success than was met with the previous season."

APPLES FOR NEW HAMPSHIRE.—An intilligent fruit grower of New Hampshire says there are but three kinds of apples that can be profitably grown in that State for the market. The Baldwin, the Roxbury Russet and the Rhode Island Greening.

DuPage County Nurseries.

10,000 Dahlia roots, comprising over 100 varieties and nearly every shade and hue. Send for Catalogue.

LEWIS ELLSWORTH & CO.,
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The Pomologist

POMOLOGY, GARDENING, FORESTRY, HORTICULTURE, RURAL ARCHITECTURE, BEES.

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Associate Editor, - - *Leavenworth, Kansas.*

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Critique on Back Numbers.

BY QUERCUS.

Who is Quercus? Well, I will say (if it is any one's business) that I am a great old gnarly White Oak, standing on the bluffs of one of our Western rivers, which bluffs are noted as being one of the finest fruit-producing regions of the West.

What right has an Old Oak to set himself up as critique in horticulture?

I will explain. My first recollection is, that I was one among a grand old forest that crowned the bluffs above our beautiful river. About forty years ago a stalwart son of New England appeared amongst us, with a gleaming ax on his shoulder. He soon began to lay my brethren low. The proudest and noblest fell first, were rent asunder and hauled away by piecemeal. I shuddered whenever our pigmy foe approached me, but my fears were groundless. He neared me once, gave me a glance, but turned away with a frown. I had stood somewhat remote from my brethren, in a little ravine, and was full of knots and branches, and they saved me. Years rolled on. Having lost my companions one and all, I began to see things, for before our time had been occupied in flattering ourselves and each other. I saw the fragments of my companions stretched over the plain below. I saw my master planting little silly looking twigs of trees on the side hill just below me. I saw him cultivate and care for them with the tenderest care. Soon I saw them covered with bright flowers, then with golden and rosy apples! not acorns! I saw his two stripling boys grow up to manhood. One day these boy-men came on my bluff. The younger, whom I had always seen oftenest among his father's trees, talked much and earnestly, the elder but little, and assentingly. They came back again with teams and tools, tore out the old stumps, deeply plowed the ground, and then planted the bluffs for nearly as far as I could see with little trees and tiny plants, of all the kinds that *they* called fruits. They cared for them kindly, they kept the soil mellow and clean, all the time talking of them and their products, and the youger brother talking to his pets, the trees, when the elder was not there. I soon learned their language, and stored up all that was said, having nothing else to do. The younger, whom we will call Acorn, took all the papers treating of his business, and sought my kindly shade in which to read them. I soon learned to read. He also attended all horticultural meetings, and told his brother and *me* all he had learned. He put in practice all new theories that seemed reasonable, and compared results. So you see, dear reader, that the Old Oak, having nothing to do but watch, listen and learn, may be a better counselor than you might think.

Old Oak will never criticise merely for the sake of criticising, never lose his temper or worry that of others, but will kindly point out to the beginner the most valuable as well as the dangerous points made in the columns of the POMOLOGIST; will gently let the gas out of fine-spun theories that have been tried at the bluff orchard and found wanting.

"Should Trees be Pruned?"—When Acorn read this heading, Old Oak quivered all over with expectation; for if there is any one subject that Acorn, his brother and father ever grew warm about, it is this. He believing that after a tree was properly started in the orchard it required no more pruning for years, and then no such pruning as is generally practiced. Old Oak agrees. Acorn read the Doctor's essay in '67, and put it in practice, with—but we will not anticipate. But this thing of balancing trees when transplanting them needs a word. Old Oak supposes that if the Doctor was on his way across the plains, and broke the end off the double-tree of his wagon where he could not get wood to make a new one, that he would bore a new hole for the clevice near the broken end, and go on without paying any attention to the centre pin!

Dr. Howsley gives some very valuable advice about the pear tree. The pear tree has told Old Oak time and again that its requirements in the West were a very poor and very loose dry soil, with thorough cultivation in the early part of the season, *no pruning whatever* from the time the bud or graft was inserted until maturity, with close planting and shelter by other trees on the south-west side; or, an extremely rich, dark and loose dry soil, without cultivation.

Worms.—$200,000 worth of *wormy* apples shipped to one point in Kansas! How about future "gold medals?"

Report Ad Interim Committee.—"We find that locations which retard blossoming are the best for orchards." Old Oak would say an open northwestern exposure, which not only retards blossoms, but deprives Jack Frost of his sting. There is no doubt but that outrageous and uncalled for pruning and over-stimulation are the true sources of blight in the apple.

Horticulture and Home Culture.—Dr. Andrews treats his ascerb subject rather *crabidly*. But certainly he has the best of the argument. If the Siberian apple can be made to give a good wholesome fruit to people who wish to live 250 miles north of where the common apple will thrive, its value cannot be questioned. And again, this thing of trying to raise none but the finest fruits is the most expensive load the fruit grower has undertaken to carry. Acorn says he can raise ten barrels of Ben Davis apples as cheaply as he can one bushel of Yellow Bellflowers, and has always succeeded in getting more money for the the ten barrels than for the bushel. And Old Oak has no doubt but what more money has been made from the old Bell or Windsor pear, according to the number of trees planted, than from any other, poor and almost worthless as it is. Yet who would not rather have a mess of stewed or baked Windsors than no pears at all?

Miner and Wild Goose Plums.—Will Mr. Terry tell us whether the Wild Goose is as *hardy* as the Miner? Mr. Weir's article on this subject is timely and to the point.

Mr. Elliott had ought to *know*, not *think*, about these cherries. Two or three seasons had ought to tell us the facts whether the Early Richmond is the Flemish or the Kentish. Old Oak believes that Downing is the authority to follow in this matter; that the proper name of our Early Richmond of the West is *Kentish*, and then we have Kentish, Late Kentish and Flemish, good hardy cherries for the West, all distinct.

Horticultural Meetings.—Friend Kellogg is right. We need these societies to determine the nomenclature of our fruits. Thus, we have two Duchess of Oldenburgs, two Jannetts, *five* Russets, apples, &c., *ad nauseum*, under the same names in different neighborhoods.

Spontaneous Generation.—Old Oak had ought to know something about this, and agrees with Mr. Meehan in part. But would say this, that the acorn may germinate in the shade of a thick pine forest, and maintain its life for ages, centuries, merely growing up each year with two small leaves, killing back to the ground each winter, and then when the forest is cleared away spring into lusty life.

Frogs Spitted on Thorns.—Every one for his trade. A man may be a good pomologist but not a good froggist. Mr. Riley is certainly right about the impalement being the work of a Shrike. But how did Mr. Riley know they were *young* frogs? Did he count the wrinkles on their horns? Old Oak would call them *tree toads*.

The Whortleberry.—Old Oak knows but little of the plant but knows the fruit to be wholesome and delicious, and sees no reason why plants taken from dry open exposures could not be cultivated with pleasure and profit.

Mulberries for the Birds.—Was there ever so much nonsense put into so little space! Not but that the White, Red and Black mulberries are beautiful and desirable trees, and very useful in keeping or tempting the birds away from the raspberries and cherries, and bear wholesome fruit for children young and *old;* but that they should keep the curculios and black gnot from the cherries and borers and codling moths from the apples, is merely ridiculous nonsense.

Progress in Apples.—W. C. Flagg, at one of the meetings of the Alton Horticultural Society, states that of the forty-one varieties of apples approved by the American Pomological Society in ten or more discussions in 1864, eleven were recommended by Cox half a century ago. These are Early Harvest, Large Yellow Bough, Summer Queen, American Summer Pearmain, Summer Rose, Maiden's Blush, Rambo, Fall Pippin, Yellow Bell Flower, Newtown Pippin, and Spitzenberg.

The Currant—Its Nativity.—Best Sorts.

The currant is said to be a native of the north of Europe. In a work entitled "The Companion for the Orchard," published in London in 1831, the author remarks: "This agreeable and wholesome fruit is undoubtedly a native of our country; it was formerly found growing, in the wild state, in the woods and hedges of Yorkshire, Durham and Westmoreland, as well as on the banks of the Tay, and other parts of Scotland. The red currant grows naturally in Sweden and other Northern parts of Europe. The white is only a variety of it, and was at first accidentally produced by culture. As a further proof of its being a Northern fruit, we have no account of its being known at all to the ancient Greeks or Romans, who have been very accurate in describing all the fruits known in their time. It seems not to have grown so far south as France; for the old French name of *groseilles d'outre mer* evidently bespeaks it not to have been a native of that country, and even at the present time the French language has no appropriate name for it distinct from the gooseberry. The Dutch also acknowledge it not to have been indigenous to Holland, where it was called *besskins over zee*. Whether the Dutch first procured this fruit from Britian, or from any other northern countries, we must acknowledge ourselves indebted to the gardeners of that country for improving the size, if not the flavor, of this fruit."

LA VERSAILLES.

No garden fruit should be more universally cultivated than the currant. It has been well said that the currant needs no eulogy—remarkable for its many good qualities—hardiness, productiveness, ease of culture, time of maturity, wholesomeness, and its various uses. As soon as the berries are fairly formed, and before they begin to ripen, they are used by many for pies and sauce. At maturity there is nothing better for either of these purposes, while for preserving by bottling, none of our fruits keep as well, and few are better for winter use. For jams and jellies every house-keeper knows the currant has no superior among our long list of fruits.

No garden should be considered too small for a few currant bushes; a few well trained plants will supply an ordinary family the year through. Ripening of the fruit may be much accelerated or retarded by the situation of the plants. Plants situated on the south side of a tight fence will ripen their fruit some ten or fifteen days earlier than when remote from any shelter. On the other hand, if planted on the north side of a fence, the fruit will be retarded in its ripening, and will hang long on the stems after maturity. By a little attention to these points in planting, the currant season may be lengthened out three to four weeks. Though no plant produces fruit more generously than the currant under negligent culture, nothing pays better for *high* cultivation. To keep the plants in a vigorous condition, and to insure the finest quality of fruit and the largest crops, an annual top-dressing of coarse manure is indispensable. It should be applied in the fall and slightly worked in in the spring. In fact, to insure the best returns, neither manure or the pruning knife should be used sparingly. Annually—as soon as the fruit is gathered—cut out all three year old wood and burn it, for the currant borer will be found in the pith of such wood, and wood so infested is a useless incumbrance. In pruning the currant it is recommended by some writers to shorten in the last season's growth to six or eight inches. Don't do it. Take out none but the old wood, as a general thing.

As to the most desirable kinds, we would recommend Red and White Dutch, White Grape, Cherry and Versailles.

Red and *White Dutch* are old and well known sorts, and may safely be recommended for general cultivation. They are at home in all kinds of soil, free growers, productive, and clusters and berries fair size. There is no fruit under the sun that pays more liberally under high culture than this currant.

The *White Grape* is large, handsome, and very popular. Fruit large, yellowish white with less acidity than *Red Dutch*.

The *Cherry* is large and splendid—the largest of the currant family; bunches short, rather more acid

than the *Red Dutch;* variable in productiveness; in some localities a shy bearer, while in other situations very productive, as in a clay or rather heavy soil.

La Versailles is a vigorous growing plant, with large, coarse foliage. In some sections it gives great satisfaction to both producer and consumer. About Boston it is grown extensively; is very productive, and commands a higher price in that market than any other variety. Fruit of the largest size, dark red, resembling the *Cherry Currant*, but clusters much longer.

Of the *Black Currant* there are several varieties, of which the Black Naples is esteemed the best. It is used for jams, jellies, tarts and wine. It makes a wine possessing valuable medicinal qualities. The Boston *Medical Examiner* says, "It (the wine), has all the properties of the best pure wine, without any of its heating or constipating effects." * * That "it has been strikingly remedial in low stages of typhoid and bilious fever."

Should Trees be Pruned?—No. 4.

By the Associate Editor.

Having considered the theory, philosophy and practice of pruning and its bearing on vegetable life, we shall now give the result of our experience in corroboration of the principles herein advocated.

After more than forty years of careful observation in pruning for the various purposes suggested by different authors, the last ten being devoted to a practical test and comparison of the relative value of pruning and not pruning, we have become fully convinced that pruning is in no instance of any benefit, but in most cases an absolute and irreparable injury, except for the conditions before expressed, and those hereafter to be named.

In the fall of 1860, we transplanted a lot of apple trees in a block on the same level, and soil, seventeen feet apart, selecting the trees of equal size; took them up and re-set them ourselves, with the same care and on the same day; they have received the same cultivation and attention since, except some were *not pruned*, others very slightly, and a few pruned up two feet high. In the fall of 1866, we measured the circumference of the trees near the ground and published the same. Last fall (1870) just ten years from resetting, we measured them again, with exactly like results. We also transplanted a lot in 1864, pruned up to their present height in the nursery two years before being removed. We measured them in 1866, and again in 1870, with the same result as those above. We herewith give a condensed table, of the different varieties, years of measurement, and the total results.

Apple trees set out in 1860—prnned and not pruned.	Years measured, diam. in ins. 1866	1870
Fulton, not pruned at all	15¾	26½
Pruned once, but slightly	14½	25
Pruned up two feet	12	20¼
Red Astrachan, not pruned	14	26
Pruned once, but slightly	12	21
Pruned up two feet	11	20
Chronicle, not pruned	15	24
Pruned once, but slightly	11½	19½
Pruned up two feet	10	18½
White Winter Pearmain, not pruned	15⅛	24½
Pruned once, but slightly	11½	21
Pruned up two feet	10½	19½
Benoni, not pruned	13	20½
Pruned up two feet	11½	17½
Sweet Bough, not pruned	12	18¼
Pruned up eighteen inches	9½	15¼
Fameuse, not pruned	14	24
Red Russet, not pruned	16½	25½
Talman's Sweet, not pruned	14	24
Trenton Early, not pruned	14¾	25
Fall Pippin, pruned up once		17¾
Oldenburg, pruned up once		15½
Early Joe, pruned up once		17¾
Esopus Spitzenburg, pruned twice		13
Average of all not pruned	14½	23¾
Average of all pruned slightly	12¾	21½
Average of all pruned two feet	10¾	17½
Trees set out in 1864, the same age as those above, pruned up in nursery.		
American S. Pearmain, pruned up two ft.	10½	18
American S. Pearmain, pruned up three ft.	9	14
Large Siberian Crab, not pruned	9	12½
Large Siberian Crab, pruned up 33 in.	5½	9
W. W. Pearmain, top pruned the same age as those above, not half as large		12½

In the above table will be seen the effects produced by pruning trees but once in ten years to be in proportion to the amount pruned. This great difference in the size of the trees pruned and *not* pruned, showed itself in 1866 as 10¾ to 14½, being a difference of 3¾ inches, and has continued in the same ratio up to the present time, now being as 17½ to 23¾, a difference in circumference of 6¼ inches, being equal to more than one-fourth the size of the trees in favor of those *not pruned*.

It will also be seen from the table that pruning in the nursery before transplanting does not remedy the matter, for the result is in like proportion, and that pruning out and shortening-in the tops produces a more deleterious effect.

Now, if pruning but once either in the nursery or orchard will produce such an effect, what must be the result of continually pruning, for *form*, for *wood*, for *vigor*, for *fruit*, for *transplanting*, and for every other imaginary whim. It may be said that there were some conditions overlooked, which made this difference instead of the pruning. This kind

of argument, although quite common, is too absurd to deserve a reply. To suppose that a person fully believing and practising pruning, almost a lifetime, would make experiments and overlook the most important conditions, to convince himself contrary to his will, is rediculously absurd.

If these experiments only embraced a few trees, varieties, and years, there might be some plausability in such a position; but when they embrace hundreds of varieties, and thousands of trees, and many years, with uniform results, we think if mistaken in this, there is no confidence to be placed in our senses, and the sooner we abandon them the better, for ourselves and also for the community, (and "go it blind.") It may, however, be admitted that trees not pruned will make more growth and be larger, but what *benefit is that to us*, unless we get fruit sooner or more of it. We answer that what we gain in growth, we also gain in vigor, health and constitution, a foundation upon which we can only expect good and abundant fruit. Contrary to the general received opinion, we get fruit not only sooner but more of it and of better quality.

We transplanted in 1867 four hundred apple trees grafted in 1862 on small sections of one year old roots; they were *not pruned* in the nursery neither at transplanting nor since. In 1868 and '69 they bore fruit, many trees breaking with their crop, and had it not been for the late April frost of '70, they would have had a much heavier crop; they are now again heavy set with fruit buds. Notwithstanding the heavy crop of fruit they bore, they made a very strong growth of wood, which the following extract will show. Messrs. Williams & Douglass, of Columbia, Missouri, who got scions from these trees in '69, say: "Scions all right and satisfactory, have made a good growth of wood the past season, they show such a fine ripened growth." Many others have made similar remarks. These trees now average twelve inches in circumference near the ground, and many fourteen, and some few fifteen inches. Although these trees were five years old, and large when transplanted, they were taken up and reset by inexperienced hands, and *not pruned*, yet only two died in the lot, and they were defective trees.

Pears at the South.—The Bartlett.

While it is doubtless true that some varieties which are very fine in New England will not succeed at all here, still it is an unquestionable fact that the varieties which do succeed here are larger and of higher flavor than the same varieties in a colder latitude. This is the case with the Bartlett, Duchesse d' Angouleme and Seckel. The Bartlett, especially, is full fifty per cent. larger, and of far superior flavor. Indeed, this variety attains its greatest perfection in the States bordering on the gulf, and besides, is the surest crop that can be grown. We have had the trees in bearing some ten years and never a failure. It succeeds equally well in this climate on both quince and pear, and comes into bearing earlier than almost any other variety—say in two or three years on the quince, and three to four years on the pear. The fruit is subject to no insect depredations, and consequently is always fair and perfect, and if pulled from the tree when green, but fully matured—as it always should be—and placed in a cool and dry room, ripens to perfection. In its season—say, in this latitude, from the middle of July to the middle of August—the Bartlett has no competitor. And we desire here to call the attention of the people of the South to the importance, in a money point of view, of growing this fruit on a large scale for the Northern markets. Throughout the United States the Bartlett is the most popular pear grown, and always finds a ready sale at high prices in all the Northern cities. And as it requires to be picked while green and hard, it will bear transportation to the remotest section of our country without the least damage or injury. The great fruit markets of Boston, New York, Philadelphia, Cincinnati, Louisville, Chicago and St. Louis could be supplied a month or six weeks in advance of the time of ripening there. Indeed, our entire crop could be disposed of before theirs would come upon the market. The business once established, with a full supply, and there is no estimating the extent of the demand; at the present time, we know of no business so inviting, so full of promise, to us of the extreme South, as this. A few acres in Bartlett pear trees, with proper culture and management, would be a fortune. Who of our readers will try it?— *C. C. Langdon, in Mobile Register.*

The Date Palm.

The Date Palm at an early period of history must have engaged man's attention in an eminent degree. It grows, to begin with, in a tract of country where atmospheric moisture of any kind is so scanty that its leaflets, unlike those of other Palms, are constructed so that at their base they form little receptacles, and thus catch every drop of moisture. It has no branches like other trees, or as the Gingerbread Palm (*Hyphæne thebaica*,) with which it is occasionally associated. It has several features in common with man which no explanation could remove from the minds of the primitive people. Its body is covered with hair, like the body of man its head, once cut off, would no more grow again than that of a human being; the male and female are represented by different trees, and it is well known that the female would die an old maid unless some bachelor should take compassion on her. Add to this that the whole population at that time relied upon dates as their staple food, as is still the case in those countries.—*Gardener's Chronicle.*

The Apple.—Its Propagation, No. 3.

By the Associate Editor.

Having once determined the number of trees to plant, lay off the ground in the following manner, which is easy, simple, convenient, and comprehensive, requiring but little time or measurement to make it exact with the rows running each way, adapted to the amateur as well as the orchardist.

Whether the orchard is to contain many or few acres, lay off but one acre at a time, and so continue till done, which will be found more convenient and expedicious in the end, it being but little space to pass over and make correct, and when done, it will be a guide to the balance, however large.

First procure 49 permanent stakes, two feet long or upwards, and also 36 secondary stakes, eighteen inches long or under, or in other words procure the above number so the 36 secondary can be readily distinguished from the 49 permanent stakes, either by color, mark, or length. Take the 49 permanent stakes and set them in the following manner:

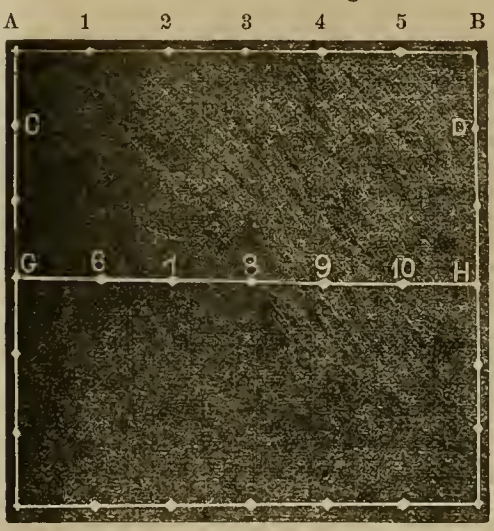


FIG. 1.

Fig. 1, shows an acre squared with the permanent stakes, set 30 feet apart on each side and through the center.

After determining the permanent corner, A, set a stake and run a line along the side fixed for your orchard, 180 feet, to B, and set a stake and fasten the line tight, then divide the space into six equal parts of 30 feet each, and set stakes as 1, 2, 3, 4, 5. Now to exactly square the land, take another line upwards of thirty feet long, and stretch it at right angles with the first line from A to C, and fasten it there. Now measure on the line eight feet from corner A, towards C, and make a mark on the line; also measure from A, towards B, on the line six feet and make a mark. Now if it is exactly square, a ten foot pole will just reach across the angle from one mark to the other, and if not make it so by moving the end of the short line at C, until it does, and then set a stake 30 feet from A, at C, in exact line. Now square the opposite corner, B, in like manner, and set a stake 30 feet from B, at D, in line. Now measure 180 feet from B, to F, and set a stake; also 180 feet from A, to E, and set a stake. Now if the land is correctly squared and measured, it will be just 180 feet from E, to F, and if not, it should be made so. Now divide the spaces from A, to E, F, and B, into equal distances of 30 feet each, and set stakes as shown in Fig. 1. Then draw a line across from G, to H, and set stakes 30 feet apart, as 6, 7, 8, 9, and 10, in line with those stakes set at the ends A, B, and E, F. Now you have a correct and short range to set the balance of the stakes 30 feet

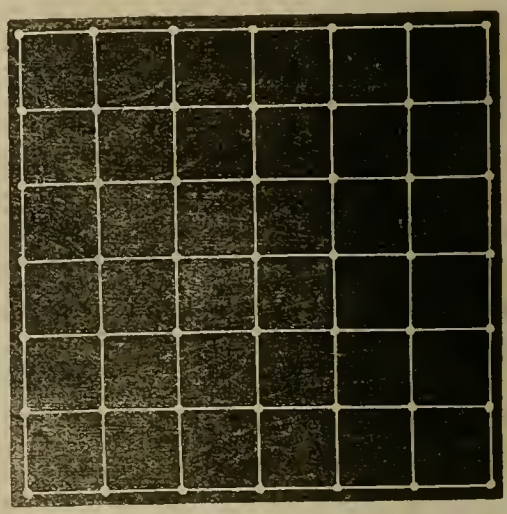


FIG. 2.

Fig. 2, shows an acre laid off 30 feet square, the large dots show the 49 permanent stakes.

by 30 in line with those already set. When completed, you have 36 squares and 49 permanent corners, as seen in Fig. 2.

This is the foundation of your orchard, and the permanency depends upon it being well executed, and faithfully performed. Now take the 36 secondary or short stakes, and set one in the center of each square, and in line and angle both ways, as seen in Fig. 3; and when finished you are ready to commence setting trees.

To take the trees up, let two men, with strong, smooth, sharp spades, one on each side of the row, dig a trench the width of the spade along on each side of the trees deep enough to cut the roots underneath. Then commence at one end, let one person hold the trees over to the opposite side, while the other cuts beneath, and so alternately take them up preserving all the roots except the few long straggling roots which will necessarily be cut off in the opperation.

When many trees are to be taken up, Harkness'

tree digger is the best implement to run under the rows by horse power. Expose the roots to the sun and air as little as possible, and when taken to the orchard ground they should be heeled in immediately, each variety separately, so of easy access in transplanting. Remove no branches, however much they may appear to be out of place, unless broken; neither shorten in the shoots or thin out the tops or cut off any of the terminal buds.

In transplanting dig the holes large enough around to take in all the roots of the tree without crowding, in their natural position. Set them *flat on the solid ground* with the strongest roots and limbs, and lean them towards the *southwest*. If the trees are two years old, set them two inches deeper

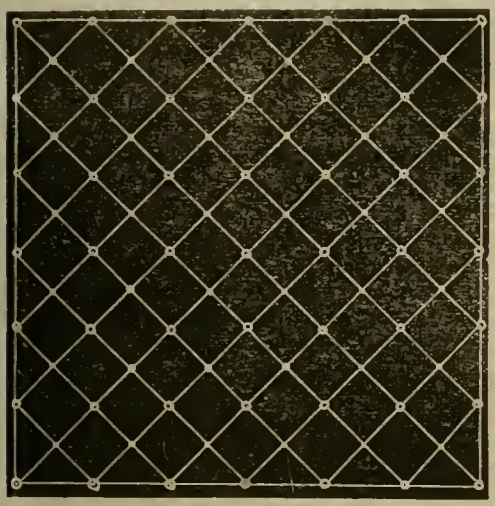


FIG. 3.

Fig. 3. The small dots show the 36 secondary stakes, set in line with the permanent stakes.

than when in the nursery, and for every additional year old set them one inch deeper. Let a person hold each tree upright in its position in line with the stakes or trees, while another person fills in amongst the roots well pulverized, moist earth. Lift each tier of roots up by hand, and spread them out horizontally in their natural position, as the work progresses, filling up the small crevises carefully and compactly. When all the roots are covered press the earth gently with the foot, and fill up level; then mound or cone up close around the tree with earth, about a foot high, firmly, and let it remain, every year renewing it, if washed or hoed down.

In transplanting the acre of ground just laid off, it must be remembered that the 49 long or permanent stakes, as we call them, 30 feet each way, is the foundation of our future orchard, and they should be planted *first* with strong, healthy, hardy, durable trees. They must also contain an assortment to fill up the whole season with fruit. Each person may make his own selections for his locality, if he knows best how to do so; but presuming all do not know, we will give the following collection for our location in the order of their ripening and the number each filling up the whole season. We have confined ourselves exclusively to red apples for those permanent trees:

2 Red Astrachan.	3 Smoke-house.
2 William's Favorite.	2 Cullasago.
2 Kansas Queen.	21 Wine Sap.
2 Sops of Wine.	7 Stark, (Kan. Keeper)
1 Fameuse.	7 Gilpin.

Set the above 49 permanent trees in line as shown in Fig. 2. When they are completed, then set the 36 secondary trees. This collection should be more

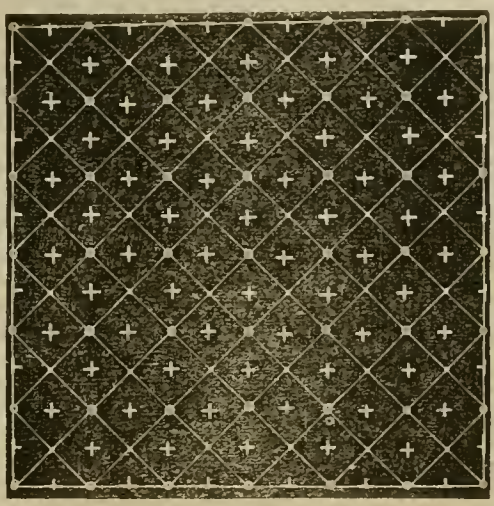


FIG. 4.

Fig. 1. The cross marks show the position of the 84 temporary trees, set between the other trees 15 feet apart each way.

dwarf in their growth, but should be healthy, hardy and productive, ripening in succession. When they are set your trees will be 22 feet apart, they should be set in line and angle both ways with the trees already set, as seen in Fig. 3. We give the following list of more dwarf habit in the order of their ripening, and generally young bearers:

2 Early Harvest.	6 Wagoner.
2 Red June.	5 Mother.
2 Early Joe.	10 Jonathan.
2 Oldenburg.	5 Red Canada.
2 A. S. Pearmain.	

Now we have besides these 84 more trees to set between those to complete a single acre, which will make them 15 feet apart each way, and they should be set in line with the cross marks, as seen in Fig. 4. As these trees are only of temporary duration, they should be of those varieties which come into bearing *very early*, of which the following are a very good collection, ripening in succession:

2 Gruver's Early.	2 Maiden Blush.
3 Totofski.	2 Autumn Swaar.
3 Sweet June.	20 Ortley.
5 Lowell.	20 Ben Davis'.
2 Early White.	25 Missouri Pippin.

Some persons might wish a greater variety, and also of lighter color, for that purpose we give the following very desirable apples in the order of their ripening:

Cole's Quince.	Rome Beauty.
Summer Pippiu.	Roman Stem.
Porter.	W. W. Pearmain.
Fulton.	Grimes' Golden.
Monmouth Pippin.	Willow Twig.

We might also add the Baldwin, Newtown Pippin, Peck's Pleasant, and Lawver; and for sweet apples the Red June Sweet, Ramsdell's Sweet, Bailey's Sweet, Kansas Sweet, Lady's Sweet, and Hartford Sweet.

If several acres of ground are to be planted, the order of setting the trees should be so varied that each variety will be placed in a group together in the same block; for instance, if two acres were planted, the 49 permanent trees, in one acre, might be Wine Sap, while each of the other varieties might be placed in a group together in the next acre; so whatever number of acres are planted, all of each variety would be found grouped near together for convenience in gathering the same variety.

It should also be remembered that when more than one acre of land is set, it requires 196 trees to the acre, which will be 27 more temporary trees than can be set on a single acre, and have space all around. The advantage of planting an orchard close together and in the order herein given is very important.

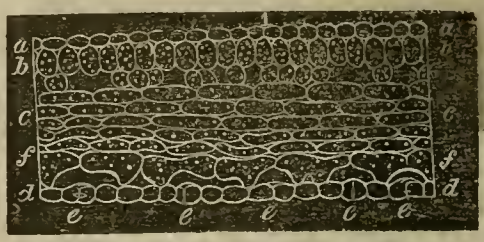
For The Western Pomologist.

Hybridizing the Apple—Russian Apples and Leaf Structure.

By Joseph L. Budd, Shellsburg, Iowa.

It is often remarked by scientific observers that the climate of the prairie States has no counterpart, unless it be upon the steppes of Asia. Every year it is becoming more apparent that trees and plants indigenous to a more equable and humid climate, can never by any process of acclimation or *seedling production* be made perfectly at home upon the inland prairies, remote from the great lakes. The apple (*Pyrus malus*), in its original stock, and through all its ages of progressive development, has been a native of the more humid portions of Europe and Asia. Upon the Atlantic coast, and upon the eastern and southern bounds of our great inland lakes, the apple does perhaps nearly as well as in Europe. The most careless observer, however, in looking over our best Iowa orchards cannot fail to notice here a tree sadly blighted in its terminal branches, there one decaying in the forks of the limbs, and dozens of others with varied marks of ruptured cells in the new wood growth, indicating more plainly than words could tell it that the cell structure of the leaf and wood of the apple was designed for a more equable climate than ours, both in temperature and humidity.

This becomes still more apparent when we notice the uniform health and vigor of the Russian apples in all our orchards. Louden, and other good authorities, state that the Russian apples are from a different original stock from the common apple, and as distinct as a species as the Siberian crab. The botanical name of the species is Pyrus Malus Astrachania. That it is distinct from the common apple is evinced in its seedlings. The Tetofski, or Red Astrachan, or any of the distinct Russian apples if grown by themselves, produce, every time, seedlings of the Astrachania type in leaf, wood and fruit. The common apple, on the contrary, in its seedlings runs to every extreme, away back to the common Pyrus Malus crabs of Europe. Before talking of the crossing and hybridizing of the apple with a view of exact adaptation to our climate, we will refer very briefly to the cell-structure and habits of growth of the common apple, and of the Russian apples and our native crabs (*Pyrus Coronaria.*)



PLAN OF LEAF AND CELL STRUCTURE.

We must first refer a moment to Nature's adaptation of leaf and wood of plants to the climate and soil of which they are native. With a common microscope, in the season of growth, the orchardist can learn a lesson in a few minutes that will aid him in understanding why the apple is not as much at home here as in Michigan. We will first look at the leaf of marsh plants, growing where they are never deprived of all the moisture they need. The accompanying cut illustrates very well a section of the cell structure of such a leaf. The upper surface (*a*, *a*) is seen to consist of somewhat flattened cells arranged in single layers. Beneath this is a layer (*b*, *b*,) of oblong cells perpendicular to the surface of the leaf. Next below are loosely arranged cells with air spaces between them. This upper surface being exposed to the sun's rays, we see is protected by compact double rows of cells. Upon the under side of the leaf *not thus exposed*, we see (*d*, *d*,) a single

layer of flattened cells with little holes or "stomates" (*e, e,*) opening into the air chambers upon the interior of the leaf, (*f, f.*) Such a leaf as this continues in health just so long as plentiful moisture is pumped up from the roots to supply the wants of the plant, and also to sustain the rapid and *unrestrained* evaporation from the under side of the leaf. The very day a full supply of moisture fails—the evaporating surface of the leaf being too delicate for the dry air—the plant begins to wither, and,—if a change does not soon come,—dies. Upon our high dry prairies we find the cell structure of leaf and wood of our native plants upon an entirely different principle. The cell structure upon the upper surface is still more compact than as shown in the cut, and often the plants of very dry situations have three or more very distinct rows of cells above the air spaces of the leaf. The under or breathing surface of the leaves are quite similar to the *upper* surface of the marsh plant as given in the illustration. In time of drought, the outside layer of cells are so arranged as to contract together like valves over the stomates or breathing pores of the leaf, closing them wholly or in part, as the moisture of the earth and air may change. Plants of still more arid climates, as the Oleander of Barbary, are still better provided with ingenious devices for restraining evaporation in time of need, and yet drawing their requisite carbon from the air. We can only add further, in this connection, the fact that the external bark or epidermis of the whole plant will be found in its evaporating and absorbing arrangements to correspond with the leaf structure.

A little careful study of these matters enables us to understand *why* the Russian apples are more uniformly healthy than the common apple in our climate. Let us consider for a moment the structure and *habits of growth of the Tetofski*, and then compare it with the hardiest of our common apples. I have before me as I write a branch of the Tetofski, and it is a study of itself. In its bud, grain of wood, and habits of growth it more resembles our native thorns than the common apple. If we examine the grain of the wood and the structure under the base of the buds under the microscope, we find in the winter scarce a trace of watery sap. Every cell is perfectly developed into *solid woody tissue;* and more than this—every cell of the new wood is freighted with minute grains of starch in such quantity as to be plainly felt under the knife in whittling the twigs. This heavy deposit of starch in the cells, is one of the *best marks* of an "iron clad" tree that we can have. Abundant starch deposit in the wood is nearly analogous to fatty deposit in animals. Both give the capacity to sustain polar cold, and both in time of need can be re-appropriated in the life economy. As the spring advances, we notice the Tetofski and most Russian apples make not only a very rapid, but very *mature* early growth. The previous season's deposit of starch, by the ascending sap is converted into sugar, and becomes an efficient auxiliary in rapid and early extension of growth. As the season advances we find why the Russian apples attain such a maturity of wood and such a deposit in the cell structure to aid in the next year's growth. The first growth *is literally its only growth.* Even in nursery under cultivation, the Tetofski appears about as "definite" as a Hickory in its habits of growth. After its growth during June and July, it forms its terminal bud, and then devotes its energies to the completion of the work already laid out. And now we must look at its leaf. Compare it with the leaves of the Grimes' Golden, or Jonathan; what a marked difference! So compact are its cells above and below, and so perfect the arrangements for restraining a too copious evaporation, that extremes of wet or dry, hot or cold weather only hasten or retard the work to be done.

To those who have not given the matter of tree growth attention, we may here say that woody tissue is composed almost entirely of carbon. This is seen in burning it into charcoal, which is nearly pure carbon. All this carbon must be taken from the atmosphere by the leaves. It has been thought that a portion of the carbon of plants was taken from the soil by the roots. Recent researches, however, seem to prove that the whole work of assimilating this vital element of plant growth is performed by the leaves. How essential then a leaf, that through all extremes of weather will maintain a perfectly healthy condition until all its work is done. With the Tetofski, when the leaf work is done—every wood cell perfect, and stored with the elements to aid in a rapid early growth for the next year, the leaf ripens and drops from the tree as naturally as a thorn leaf.

(*Concluded in May number.*)

Low Headed Trees—The Wagoner Apple.

By D. B. Weir, Lagon, Ill.

Ed. Pomologist: If I were asked what apple tree I could make the most money out of, by fruit alone, I would unhesitatingly say the Wagoner. Yet perhaps this variety has given about as unsatisfactory results, to orchardists generally, as any variety that has been planted in the West. It has only been within the last two or three years that I have come to understand the requirements of the tree, and how it should be grown. All apple trees require in the West shorter trunks than we have been in the habit of giving them, to attain a perfect development. If there is any apple tree that requires a *very* short trunk, that one is the Wagoner. An experience of twelve years with trees with trunks ranging in length from six inches to four and a half feet, has proven to me conclusively that this tree should never have

a trunk longer, from the grouud to the first branches, than 18 inches, and were I planting a new orchard with it I would not plant a tree with a trunk longer than one foot. Why? In my small orchard of this variety, consisting of 80 to 100 trees, the trees with trunks under two feet have produced from four to five times as much fruit, of better quality, as the trees have with trunks two to four and a half feet in length, on the same soil and with exactly the same treatment. No, not exactly the same, for if we had not given a vast amount of extra care and labor to the high headed trees they would all have been dead long ere this. The extra labor was in the way of keeping them free of borers, sprouts from around their collars, and protecting their trunks from the sun on the south side. The majority of my high headed trees are now dead, killed outright by an over burdensome (for the season) crop of fruit last year—that is, by the crop of fruit and the great drouth combined. My low headed trees are perfectly healthy and sound as yet, give yearly crops of magnificent fruit, and will from all appearances continue to do so for years to come. To show clearly why a low headed Wagoner tree is the one capable of bearing the most fruit, I give the following measurements of trees now growing in my orchard, both planted the spring of 1861, standing side by side, and treated in the same way:

The one with its trunk 4½ feet long is the best high headed tree in the whole lot, trunk 15 inches in circumference at the ground, height of tree 12 feet, diameter of base of head 8 feet, which multiplied by height of head equals 60. The other with trunk one foot in length has it 19 inches in circumference at the ground, height of tree 15 feet, diameter of the base of head 14 feet, multiplied by height of head equals 196. 196 to 60, the one having the capacity to bear three barrels of apples to the others one, and it does it every time, and the fruit is larger, higher colored and of better flavor than that of the the other; besides the tree is a perfect model of health, vigor and of undoubted longevity, while the other, though only ten years planted is an old decrepit failing tree.

We have other varieties of apple trees, such as Primate, Summer Pearmain, Early Harvest, Red June, Red Astrachan, &c., trees of dwarfish habit, that to give reasonably good success must have low heads. Their real value as profitable varieties has been but little known, for the reason that they have almost invariably been forced by trimming them up to form their heads at the same height as stronger growing varieties, which throws them entirely out of balance, and it is impossible for them ever to bear a tithe of the fruit they should, and what they do is of poor quality.

Yes, the Wagoner is my favorite apple. When properly treated it is of the brighest red color, just the proper size, of the best quality for both cooking and eating, comes into use for cooking in August, keeps usually without loss until February, and is the easiest apple to sell at a high price I know of.

WHAT IS A LOW HEADED TREE?

What I call a low headed tree is one with the branches starting out at that height from the ground which nature always indicates, as we see in an apple tree two years from the root graft, or a strong-branching one year dwarf pear from the bud, and never trimmed up any whatever, and that has had its shoots shortened back each year to 18 inches, and has never had any sub-branches cut from the base of its main branches; and *not* a tree that has had its branches started low and then had them trimmed up two, four and six feet, making the most abominable of all abominations, five or six very high headed trees growing from one stump. I hope that all who have occasion to plant fruit trees this spring will procure a few trees of Primate, Summer Pearmain, Summer Pennock, and Early Harvest, the lowest, scrubbiest, though healthy, trees they can find, and plant them at the same time with trees of the same varieties with heads three to five feet high, and mark the result, heading the scrubs back as above.

The Butcher Bird versus Frogs.

By J. Stauffer, Lancaster, Pa.

Ed. Pomologist: I highly appreciate Mr. C. V. Riley, and have great respect for his opinion on matters connected with his specialty, but do not agree with him in the matter of your article on page 24 (current volume for 1871)—"Frogs Spitted on to Thorns," in a portion of your nursery grounds, on the thorns of the seedling trees, and also lodged in the sharp forks of small limbs. Had you carefully examined, you would also have discovered these little frogs on the ground. I have myself witnessed showers of frogs, and on one occasion having taken shelter under a locust tree during a sudden shower, was an actual eye witness, not only to seeing small frogs spitted and lodged as you figure them, but actually alive, where they lodged in the deep dust of the roadway, saturated with water. This fact is no doubt known to many younger men than I, although of not very frequent occurrence.

I lately read an account of a shower of herrings that fell, if I mistake not, in the State of Delaware, but such cases not being new to me, I made no special note of it. I am aware, too, that facts of this nature have given rise to long debates; that is, the compulsory migrations by means of showers, of "toads and frogs." Modern observations have demonstrated the actual existence of this phenomenon, which is explained now-a-days in a very rational manner.

Aristotle, writing on this subject, supposing they came from heaven, he called them "Mssengers of Jupiter." Many carefully observed instances in modern times have wrought conviction among the learned.

Recently, when this phenomenon gave rise to such great discussion in the Academy of Science, in France, the wise and learned Dumeril gave it as his opinion that the water-spouts, passing over the fens, pumped up the water as well as all it contained, and carried it off to be deposited at a distance, and relates a case attested by a whole company of French soldiers. "During the revolution, while on the march in the open country, they were assailed by a shower of little toads which were dashed in their faces, falling with the torrent of water. Astonished at such an unwonted attack, and desirous of satisfying themselves as to whether this living shower came from above, the soldiers spread out their handkercheifs on a level with their heads, and found they were covered directly. After the storm, the astonishment was general when the soldiers saw this unexpected brood leaping about the folds of their cocked hats." This same statement is publishad on page 346, in a work called The Universe, by F. A. Fouchet, M. D., Translated from the French; published by Chas. Scribner & Co., New York, 1870.

I give this simply as additional evidence to those who might question my own testimony--and indeed, were it necessary to quote more authorities I have them at hand, notwithstanding the supposition of several learned men that it was a popular error, and that "these young toads and frogs simply came forth from clefts of the dry ground, and had been driven out by the rain."

A word about the Butcher Bird—The Great American Shrike. The *Lanidæ*, or Shrike family, have a strong compressed bill, the tip abruptly hooked,both mandibles distinctly notched,the upper with a distinct tooth (in this respect much like the falcons) comprising the *Shrikes* and the *Vireos*. The genus *Collyrio* has the bill shorter than the head, the tip of the lower mandible bent upwards, legs stout, wings rounded, and claws very sharp. The Butcher Bird is the *Collyrio borealis*, and is nearly nine inches long, etc. It preys mainly on insects, sparrows, and other small birds. It has the power to imitate the sounds of other birds, especially those indicating distress; and has the singular habit of impaling birds and insects upon the points of twigs and thorns. That part is the known history of this bird, found in most of the Eastern, Middle, and Southern States; also called Tyrants. The *Vireos* are now separated from the *Shrikes*, or Fly-catchers, although they possess some of their habits. They are more musical than the Tyrants, which latter are destitute of song. How aptly Shakspeare, in his Merchant of Venice, describes this "biped"—only he refers to another genus:—

> "The man that hath no music in himself,
> Nor is not moved with concord of sweet sounds,
> Is fit for treasons, stratagems, and spoils;
> The motions of his spirit are dull as night,
> And his affections dark as Erebus:
> Let no such man be trusted."

Why this tyranical butcher impales his victims after destroying them, is a question not answered by supposing they have weak digestive organs, so that it must needs be putrid; but Mr. Riley admits that they frequently eat newly killed animals. Neither do I know how, like other bipeds, they prefer "venison to fresh flesh." I presume these other bipeds prefer fresh venison to stale venison.

As a general rule, they, these birds, have a system in their practice. Your two figures and the fact of lodging in the forks of the twigs, differ from that system. Therefore I agree with you, Mr. Editor,—"From the position in which these frogs were found, as illustrated, our solution of this [not to me] singular phenomenon was [and is] that they must have been showered down from above."

Fruit Prospects.—Great Sleet Storm.

Ed. Pomologist.—The fall was favorable for the maturing of the wood, and our trees went into winter quarters in good condition. Our winter has been one of mild temperature, except the last part of December we had some very cold weather, the thermometer getting down from 10 to 18 degrees below zero for two or three days only. Our Apple Trees have without exception (even tender varieties) come out in good condition, and although they bore a very large crop last season, are now well set with fruit buds, and if the spring is favorable we have promise of another good crop the coming season. Pears full of fruit buds. Crop of Pears past season was very light (except Seckel). Cherries—Early May and Late Richmond, last season, light crop. At present I don't think I ever saw so many fruit buds. I now have given you the bright side and will also give you the dark one.

The month of January last will be long remembered by the people in our vicinity, south and east of us, for the unparallelled severity of the storm of ice and snow with which we were visited. The month was moderately cold and clear, and was succeeded by milder and most delightful weather until Friday morning, the 13th, a slight mist came, increasing to a fine rain, prognosticating a sudden change. As the day advanced, the storm increased, and when evening closed in the rain still increased. During Friday night it changed into a severe storm of sleet, accompanied with considerable wind. On Saturday morning everything was loaded down, and the largest shade and forest trees crushed be-

neath the weight of ice, and yet the storm increased. On Saturday it continued, alternating between rain and sleet. Saturday night the storm continued, the rising wind adding to its fierceness, and increasing the damage already done to orchard, forest, shade and ornamental trees. On Sunday it changed into snow, but could add little to the damage already done. The damage done to orchards is very great, entirely destroying hundreds of trees. Our oldest orchards fared the worst. The trunks and branches were covered with a coating of ice from 1½ to 2 inches thick, and many fine specimens of evergreens were borne down with the immense weight of ice, and ruined. North of us a few miles, there was no sleet of any consequence, but there was a heavy fall of snow. At least ¼ of my orchard is entirely ruined. Scarcely a tree escaped without some of of its branches broken. To estimate the amount of damage would be impossible, for aside from the intrinsic value of the amount destroyed is the care and interest expended in watching over and training those trees, whose beauty and value are destroyed. I cannot, according to the time allotted to us to live, expect to see others in their places as they were before the storm, but I shall fill their places with younger trees, and if I should not live to eat their fruit, others will.

Nursery trees received no injury worth mentioning. Young trees lay almost flat on the ground. The ice remained on the trees eight or ten days. South-west of here, at Bloomington, I understand the damage to trees was even greater than here.

Wilmington, Ill., March 8th 1871. N.

For The Western Pomologist.

The Peach in the Northern States.

By W. H. W., Hartford Co., Conn.

The peach being one of, if not the most luscious and desirable of our tree fruits, it becomes very desirable to grow it wherever possible; but from its being a native of a mild climate, the tree has been found difficult to grow, to stand the rigors of our northern climate and produce fruit, especially the finer and more desirable varieties. What shall we do then? Shall we abandon the attempt altogether, and not try to grow it in any of its varieties? Our answer would be an emphatic No! for, we believe, if we cannot grow the largest and finest fruit, we can succeed in growing a good peach, with a tree that will stand our climate and produce fruit as regularly as our other fruit trees. How shall it be done? you at once ask. Our reply will be, we must grow hardy seedling trees in protected localities, and adapt our culture, pruning, etc., to the circumstances of locality, climate, etc. Natural, or Seedling trees, frequently produce fruit of nearly, if not quite as good flavor, richness, etc., as the fruit from budded trees; especially is this the case when particular pains are taken to produce the trees, cultivate and prune with the particular object in view. We do not pretend we can grow the same quality of fruit as easily as can be done in a more congenial soil and climate; but that we may have good fruit of our own production with but little extra care and labor.

In order that we may succeed with the peach throughout all our Northern States, we must grow seedling trees of dwarfish habit, slow of growth, and prune or cut back somewhat closely, and give them protection of forests or timber growth, etc. Procure seed, or young trees, from good flavored natural fruit from perfectly healthy trees in a more northern locality. In the fall, after planting, take them up and cut them back to within three to six inches of the collar; plant them so that they will be sheltered from prevailing cold winds, storms, etc., by hills, ridges, woods, buildings or other breaks; keep them headed quite low by cutting back annually, so that at five or six years of age the trees may not be more than as many feet high. Cultivate early in the season, ceasing as early as July 1st, to induce ripening of the wood before cold winter comes. Throw the earth up to them so as to mound and protect the lower part of the branches, during winter, from cold, and to keep out the borer.

The Powlonia Imperialis

C. C. Cooley, of Manchester, Ohio, has on his premises, growing luxuriantly, one of the most beautiful flowering trees in the world, the same being the "Powlonia Imperialis," of Japan. Some nine years since his brother sent him a small tree, about two feet in hight, and about the thickness of one's finger. It is now forty-five feet high, and measures fifty-two feet in circumference, three feet above the ground. Some of the leaves are forty-seven inches in circumference. It commenced to bloom the third year after planting. The flowers are very beautiful, growing in large clusters, sometimes to the number of one hundred and twenty in one bunch. Each flower is about one and a quarter inches in length by two in circumference. They all bloom at one time, and are as fragrant as a white lily, remaining in bloom from two to three weeks. No insects trouble the tree, except honey bees, which seem to be very fond of the flowers. It never sprouts, but can be raised from the seed as easily as corn. The seed should be planted about the first of May, and cared for as other plants are cared for, care being taken to give them good soil and that attention which plants should always receive. For ornamenting yards or cemeteries we can think of nothing which would be more attractive than the tree spoken of.—*La Crosse Democrat.*

The Vineyard.

Vineyard Work for April.

By the Associate Editor.

Much of the work mentioned last month may still be done if not already finished, such as setting posts, making trellis, tying up vines, ploughing and hoeing the ground, and making layers. But grafting and pruning should have been done last month, except in more northern regions. That we may have some definite guide for different seasons and latitudes, we will give the following rules:

Grafting and pruning should be done before the daily mean temperature reaches 45 degrees, so as to escape the bleeding of the vines.

Tying the vines to stakes or trellis should be done before the daily mean temperature reaches 50 degrees, so as to escape the swelling of the buds.

The first ploughing and the planting of the vines should be done before the mean temperature reaches 52 degrees, so as to be done before foliation takes place.

No layering from last years canes should be done except immediately after ploughing and when the mean temperature has reached 55 degrees, so the canes will have made several inches growth, which in this latitude will not be until May.

No ploughing or hoeing should be done in wet weather. Try and be ahead of your work for the next two months; it will increase on your hands notwithstanding your promptness and diligence.

"No. 13."

By S. J. Parker, Ithica, N. Y.

Ed. Pomologist: In looking over the numbers of the last year's (1870) Western Pomologist, I see on page 41, a fine grape figured and described. The expression, "the color of the berry in the shade, when ripe, is whitish green, and where exposed a dark amber," and "it seems to possess in a remarkable degree the principle of self preservation," &c., &c., leads me to say that the grape is Rogers' Hybrid No. 1; and the figure on page 41 is a fair repesentation of his No. 1. Yet it is strange that such an excellent man as the Professor should not have known Rogers' No. 1. I regard No. 1. as the best, all things considered, of Rogers' whole collection, for all regions east of the Rocky Mountains. The vine is eminently hardy, never injured in foliage, always bears well; and no man can eat in October, November, December and into January, and not wish he had more and more of them. It melts in delicious softness so delightfully in these months, without one particle of ill flavor.

If the grape described in the March number of 1870 is not this, it deserves attention, and to be better known; but I can hardly be in error as to its real name. I am glad that at the West it is as at the East, *the reliable, excellent grape* that for the last ten years I have asserted it to be. Please recommend it more highly. I have now for twelve years proven it, and in no year has it in the least failed with me.

Mr. Editor, I wish you would induce some of your more wealthy grape growers to try some of the grapes of Mr. David Thompson, of Green Island, (post-office Green Island), near Troy, New York. I cannot say they will not fail in the West. But this I can say, that those who like mild flavored grapes will certainly be pleased with these. And they should be tried, everywhere.

Mr. Thompson's large white grape is a splendid affair, and is called the "General Grant." His large oval black grape—the best of all his collection is called "William Carpenter." The round black grapes, "William Tell," "Eleanor," "Ellsworth," and a dozen others, are fine samples, too, of new choice large grapes. I am sorry Mr. Thompson's stock is so small. He has but a few vines to sell, and these are held at high figures, because he ought to be paid for forty years' pains-taking to get them. I have heard for years of them, but I never saw them until last fall. They all have much foreign pollen in them, and that casts a shade of doubt over their general success, yet I saw them in the open air, in the vicinity of Albany, N. Y., where we do not consider the vine has the best home or locality, growing healthily, with rich loads of fine fruit. If they can be grown West as at Green Island, he is a dull man who neglects to get them, that is certain. So all who are up to the times we live in will get and try them.

The Missouri Valley Grape Growers' Association.

First By-Annual Meeting, at Leavenworth, Kansas, February the 14th and 15th, 1871.

By the Associate Editor.

This Society met at ten o'clock A. M., at the Council Chamber. The meeting was called to order by the President, Z. S. Ragan, of Independence, Mo., who returned his thanks to the Society for the honor confered upon him by electing him President. He said the object of the Society was to promote the interest of grape growers of the Missouri Valley, which is no very small district, and perhaps not surpassed by any other grape growing region. We should conduct our meetings so as to call together the practical grape growers, that they may present their successes, and also their failures, that by comparing notes we may arrive at the cause of both and improve thereby. By this method we will gain some practical knowledge of grape growing of value to ourselves as well as to the public. The most of us are new beginners from other states, and have much to learn about the character of our soils and locations and the varieties adapted to them.

If this Society is properly conducted, it will rapidly increase in size and usefulness and be of general benefit.

After the President's remarks the subjects for discussion were the terminology, planting and pruning the vine.

Mr. D. L. Hall in a few preliminary remarks on the importance of correct terminology introduced the following resolution:

Resolved, That this Society deem it of the first importance to adopt at once a well-defined and correct terminology of the grape vine; therefore

Resolved, That we adopt for use in all our records and transactions the terminology of the Illinois State Horticultural Society, adopted at the meeting in Galesburg, in December, 1870.

The following is the terminology adopted:

Roots—That part of the vine growing below the surface of the ground.

Stem—The main stock below the branches.

Arm—A portion of the vine permanently trained in a horizontal position.

Shoots—Green wood. This consists of fruit shoots, "young canes" and "suckers."

Lateral—A branch from a shoot.

Cane—A ripening shoot from the stem, arm, or spur.

Spur—The cane cut short.

Joint or Node—The enlarged parts whence come buds, leaves or tendrils.

Internode—The part between joints. Tendrils, a twining support.

Motion adopted.

Mr. Sells asked: "Will it do to prune the vine while frozen?"

An animated discussion on pruning followed this, resulting in about the following as the opinion of members:

That the vine can be pruned at any time without injury, when there are no leaves on it; that long pruning is better than short pruning; that enough wood should be left on to admit of thinning the fruit afterwards; that a certain amount of heat is necessary to ripen the grape, and consequently the earlier they start the sooner they ripen.

Other questions developed the sense of the society to be that the proper distance to plant the Concord vine was about eight by ten feet. The depth at which to plant a vine about ten inches; and finally, that the top or surface roots should not be cut. There was, however, considerable difference of opinion on the last named topic.

Dr. J. Stayman, one of the committee on varieties of grapes, read his report, which called forth a lengthy, animated discussion. Dr. W. M. Howsley taking the ground that accidental hybridization was very doubtful. It was even doubted by some eminent men, as Barry and others, whether Roger's seedlings were hybrids, or that artificial hybridization could be effected with the grape. The most of the evening was spent in a scientific discussion of the subject without arriving at anything very definite. After the discussion the following resolution was adopted:

Resolved, That we recommend for general cultivation the following varieties:

For market, Hartford Prolific, Ives' Seedling, Concord and Goethe, (Rogers No. 1.)

For wine, Norton's Virginia, Cynthiana, Ives, and Concord, and the Catawba with special treatment.

For amateurs, Delaware, to which was afterwards added Iona and Wilder, (Rogers No. 4.)

A report on varieties of grapes was read from Mr. Adam Durkes, of Western Missouri, which embraced most of the varieties adopted by the society with many additional sorts which were rejected, when the subject of vineyard sites came up which caused a very general and animated discussion.

Mr. F. P. Grant and Dr. Stayman having both high and low land planted in grapes, showed by facts and figures that grapes started and ripened first on the high land. The discussion resulted in the following conclusion: That elevated land near adjoining low valleys or large bodies of water were the best sites, because the temperature was more uniform. That land should be dry or thoroughly drained. That increase of rain or moisture has a tendency to prolong the ripening of grapes and produce a succulent growth which leads to disease.

That the grape requires a specific amount of heat, (as all vegetation does,) to carry it through the different stages of growth from foliation to maturity. That an elevation of about 160 feet gives a mean temperature of nearly four degrees higher than low land by its side, making from twelve to twenty days difference in ripening the grape. That they start on high land sooner than on low land, and consequently ripen sooner. That the quality of the fruit is in proportion to the high temperature of the season and diminished rain fall. That grapes do not ripen when the temperature falls below 65 degrees. So important was the elevation of a vineyard considered, that Dr. Howsley moved that a special committee be appointed, with Dr. Stayman as chairman, to report at the next meeting the temperature and the effect produced at different elevations, which was adopted by appointing five in number.

Committee.—Dr. J. Stayman, of Leavenworth; Dr. W. M. Howsley, of Leavenworth; F. P. Grant, of Leavenworth; W. H. Sells, of Lawrence; Z. S. Ragan, of Independence.

The Committee on Wine reported that they had examined the wines set before them, and find the best Catawba to be presented by Mr. F. P. Grant, both of 1868 and 1870; best Norton's Virginia, by Mr. Jac. Madinger, of St. Joseph; best Old Concord, by Mr. H. M. Voorhees, of St. Joseph; best New Concord, by Mr. H. M. Voorhees, of St, Joseph; best Isabella, Mr. Jac. Madinger, of Jt. Joseph; best Clinton, Mr. Hidlebidle, of Independence; best Taylor's Bullett, same. The committee call attention to the fact that all the New Concord wines are better than the Old Concord, and their opinion is that the Concord wine does not improve with age.

Committee.—D. L. Hall, J. Stayman, Wm. Tanner.

The Committee on By-Laws was allowed until next meeting to report.

The place for the next meeting was selected, viz: Jt. Joseph, Missouri, and time Tuesday, September 12th, 1871.

The subject of vineyard sites was again discussed; and, after a long debate the following resolution was passed:

Resolved, That this society do not consider it of any essential importance which way the trillis is run on level ground, but on hill sides they should be run abreast of the hill.

Then the question was discussed as to the best slope for growing grapes, and if a hill-side is better than equally high level ground, resulting in the adoption of the following:

Resolved, That in the opinion of this society thoroughly drained elevated table lands are as suitable for the cultivation of the grape as hillsides.

The following resolution was lost:

Resolved, That the hillsides will produce the best quality of graves for wine, drainage equal.

The next subject taken up was wine making—the process of Mr. Madinger, of St. Joseph, was to ferment twenty-four hours in the skins, then press.

Mr. Rivard takes out the stems, uses a syphon in fermenting—different grapes require different time for fermenting. Best temperature for fermenting 45 deg. The quicker the wine ferments the better. Racks off in January and March.

Considerable debate took place on gallizing, etc., resulting in no definite conclusions.

Dr. J. Stayman then read an able paper on "Pruning and Trimming of the Grape." It was quite original in the ideas advanced. It was pretty thoroughly discussed.

We cannot do justice to the essay by giving a condensed report, without diagrams. We will publish it in full in the Pomologist, accompanied with suitable diagrams illustrating the different parts, in a series of articles.

Mr. D. L. Hall spoke also of the advantage of the spiral system of training the vine on stakes, which was favorably received. He showed that the canes must be thoroughly twisted around the stakes, particularly below, to impede the upward tendency of the sap and force out the bearing shoots below. That was the greatest difficulty in the system, but could be overcome by thoroughly pinching, &c. He trained up new canes to renew the old each year on a separate stake, and if the system is well executed there was no difficulty in raising from twenty-five to thirty pounds of grapes from a vine.

Mr. J. Cadogan said he had tried it and produced the best Catawba grapes this season he ever raised. We saw his grapes trained on the spiral system and they were much the best we have seen for a number of years; but whether it was the system of training that done it, we are not able to say, for we also saw the best Concord grapes on trellis there. Much is to be attributed we think, to his skill and industry and pride to excell, as well as to the system. Although we were well pleased with what we saw there of the spiral method. The great difficulty appeared to be to get the stakes in a prairie country, wire trellis being much the cheapest.

Dr. Stayman wished to know what advantages could be gained by the spiral over the horizontal arm system as given in the essay. Dr. Howsley thought it was just the same in checking the flow of sap, but perhaps the spiral had the advantage in air and in tilling the soil. Mr. Cushing rather prefered the horizontal spur system on account of cheapness and ease of training. Mr. Godard, Dr. Howsley, Mr. Rivard and others, generally adopted the horizontal arm and spur system, or some modification of it, while Mr. Madinger prefered the fan system.

A vote of thanks to the citizens of Leavenworth, railroad companies, etc., was unanimously adopted, after which the Society adjourned.

Report of Committee on Grapes.

Mr. President: Having been appointed one of the committee on variety of grapes, we beg leave to submit the following report. It is with some degree of hesitation we introduce this subject, not from any apparent want of matter, but from a difficulty in being able to recommend any grape of good quality worthy of general cultivation; not because we have no grape of good quality, but for the reason that such have not generally proved successful. That climate, soil, situation, training and cultivation has much to do with the health of the vine we must admit, but notwithstanding that, there are some species which are healthy and do succeed under the same conditions others become diseased and fail. It therefore appears that health is not entirely due to external conditions, but depends very much upon a hardy constitution. Each species and variety has its own specific climatic conditions to which it is best adapted, beyond which it will not succeed. This being the case, those varieties which fulfill our climatic conditions and remain healthy, are only worthy general cultivation.

The questions then arise, what are our climatic conditions, and what varieties are adapted to them? These are very important questions, and should be carefully and candidly considered.

First, what are our climatic conditions? They are variable, extreme and sudden, the change of temperature being from 50 to 60 degrees within twenty-four hours, and the range of temperature is from 18 degrees below zero to 110 degrees above. The average humidity of Kansas being 22.82 inches of rain, and that of Missouri 23.77 inches, and the maximum 37.38 inches; but for the last five years at this place it has averaged 28.45 inches, being 5.16 inches more than the average of both States. From numerous observations made and facts collected, the Catawba, Isabella and Delaware grapes and their seedlings will not succeed under these extreme conditions of temperature and moisture. Although our climatic conditions are unfavorable to the cultivation of many varieties, yet we find the wild grapes growing in Kansas and in Missouri abundantly and luxuriantly, hardy and healthy, bearing profusely fruit of the very richest quality. We not only find our indigenous grapes healthy and hardy, but every American species described by Grey in his *Botany*, except the Scuppernong grape (*Vitis vulpena*), which is a semi-tropical species adapted exclusively to the South, and it is healthy here but will not endure the cold of our winters without protection. Why should they not succeed here when every species except the Scuppernong is indigenous north of us, and are healthy and hardy there under conditions of greater humidity and temperature? We now ask why the improved varieties do not generally succeed with us when every species of the grape is adapted to our climate. The only reasonable reply that we can give is, that our improved varieties are not pure native seedlings, or they have degenerated in health and hardiness from our native species. The evidence we give in favor of our improved grapes being mixed with the European grape (*Vitis vinefera*), is that they have the same peculiarity of hybrids. For instance, Rogers has produced many varieties by hybridizing the common Fox grape (*Vitis lubresca*) with the European grape. In these hybrids we find every peculiarity belonging to our improved varieties, as the Catawba, Isabella and Delaware and their seedlings. The most of Rogers' hybrids are good in quality, and some very good, but none of them are entirely hardy and free from disease, but are more or less subject to rot and mildew. Others are very fickle and uncertain, some are ovate in shape, the berries adhere to the stems of all and do not drop their fruit when ripe, but none will endure extremes of temperature and moisture. Not any of these peculiarities belong to the Fox grape, but they all belong to the European grape.

Now we ask, how has it come that in the first generation of Rogers' hybrids they partake of the same peculiarities of the European grapes which are the same as our improved varieties, and not a single Fox grape or any of its seelings in the first generation has produced such an effect? The only satisfactory reason that can be given is, that they have inherited these peculiarities from the European grape, as the Catawba, Isabella and Delaware and their seedlings have inherited their defects and diseased tendencies from the foreign grape. We are aware that some writers say that the Fox grape is subject to mildew and rot, but it would be more satisfactory to give the facts, than make such assertions. We have known this grape from childhood, and have found it on low, moist, and very wet ground; have cultivated it for years and seen it cultivated by others under all conditions of weather, and yet we have never seen it mildew or rot when others by its side did. So far as it has been tried it has proved perfectly healthy and very hardy. Gray says "it is common in moist thickets. Improved by cultivation it has given rise to the Isabella grape," &c. With due respect to Professor Gray, we do say that he or no other author has a right to make a positive statement of the origin of any grape unless he has authentic evidence of the fact. We have seen no such evidence, and in the published accounts, history, and origin of the Isabella grape by our standard authors there are no such facts given. It would be much more interesting, satisfactory and important to give the facts and show *when*, *how* and by *whom* the *Fox grape* was "improved by cultivation, and (by so doing) it has given rise to the Isabella grape," &c., than to make such an assertion.

From the evidence thus far presented, we cannot recommend any grape hybridized with the European. Neither can we advise it as a means of improving our native species, much less making any fickle variety, as some of our improved varieties are a parent in so doing. We cannot at present pursue this investigation any farther, but conclude from the observations and researches already made, that we will have to resort to our own native species and intelligently hybridize them in the hope of producing some varieties healthy, hardy and productive, of good size and excellent quality, adapted to our various wants and changeable climate. Under these considerations, what varieties can we now recommend for general cultivation.

This brings us to the point from whence we first commenced, and for which we have endeavored to show the difficulty we were placed under in attempting to do so, because no grape of excellent quality has yet generally succeeded here. The Concord of the *labrusca* species stands unquestionably without a rival for size, productiveness and market. The Ive's Seedling, for early and late market and for wine, combining health, hardiness and productiveness, stands also without an equal. The Telegraph and Drucat Amber for early market, being also healthy, hardy and productive, are worthy of cultivation to a limited extent. This ends the *labrusca* class of grapes, except if we wish a white grape; we might then try the Martha, a seedling of the Concord which promises well for a grape of its color.

The Norton's Virginia, Cynthiana, and perhaps the Herman (a seedling of the Norton,) exclusively for wine, are the only grapes of the *Virginsca* class which we can recommend. Of the *cordifolia* species, we have none to recommend, but would suggest that it and the *labrusca* species as a class to hybridize in hope of producing some varieties desirable for both market and wine; the first possessing extreme earliness, juiciness, hardiness and richness, the latter extra size, hardiness, productiveness and freedom from disease, and both adapted to the North and South and also sudden and extreme changes of temperature and moisture.

With these few hasty and perhaps rambling remarks, we conclude our report on varieties of grapes.

J. Stayman, *Committee.*

Grapes on Trees.---Grape Rot.---Cause.

In the Cincinnati Horticultural Society, Mr. Thompson stated that he lets his grape vines run at random over trees, and that he has great success in this plan.

Now this may be new to the grape growers about Cincinnati, but it has been my practice for the last twenty-five years to let them run just where they like, and climb higher and more higher still, if they please; and I always have an abundant yield of grapes, notwithstanding Dr. Warder's opinion to the contrary.

I must confess that I feel considerably elated when I contrast my vines with those on the vine clad hills around Cincinnati. Whilst on one of my vines there will be thousands of bunches of grapes, without five minutes' labor in the year, those little pipe stem vines, tied to stakes, and requiring constant care, only produce a few bunches.

Now for the theory. Your little dwarfed and spindling vines can have only a corresponding amount of roots, and, consequently, a corresponding amount of fruit. It is nonsense to talk of vines overbearing for two or three years, and then not bear at all, unless they are cut and trimmed Experience proves the contrary.

If any one does not agree with me, he is welcome to his theories, whilst I can and do have an abundance of grapes. I have used sulphur more than twenty years, and with benefit, to prevent rot. Rot is not caused by a fungus, as some suppose, but is caused by some insect puncturing the grapes, whether to deposit their eggs or not I don't know, but presume it is for that purpose; yet I never succeeded in finding any eggs or worms in a rotted grape. Well, says one, how do you know they have been stung by an insect? Because I have seen the puncture, and a jet of juice which had oozed out. Whenever you find a grape which has been stung, tie a string to it, (for a mark so as to find it,) and watch the result. After a longer or shorter period it will turn whitish around the place where stung, and finally black, and continue to spread until the whole grape is rotted. If at any time you cut out the black spot, the remainder of the grape will grow and ripen, thus providing there is no defect in the vine.

Upon this discovery was based the sulphur remedy for the rot, being distasteful to all the insect tribe. Fumigations with sulphur in the evening is better than the dust, as I think the depredators work at night. I have no certain knowledge of the enemy, but always find a few large yellow bugs on the vines, when the grapes are rotting—they are very shy fellows. Whether friend or foe I know not, but kill him when I find him.—*Cor. Cincinnati Gazette.*

Refining Clay.---Grape Sugar.---Slightly Troubled Wine.

Refining Clay is imported from Portugal in packages of 300 to 700 pounds. The price is 15 cents per pound, at which any quantity may be bought. If less than original package, the package is charged extra. For refining 40 gallons of wine, about one quarter of a pound of clay is dissolved in half a gallon of the wine to be refined, by which a kind

of gluten is formed. This is placed into the wine, and thus clarification will be effected. It will be well, however, not necessary, to rack off the wine. The importer of refining clay is Mr. Rob. Francis, 47 Broad Street, New York.

Grape Sugar is imported from Germany by Mr. Julius Jungblut, 3 William Street, New York. It is packed in cases of 120 pounds, and the net cash price is 8 cents per pound.

There often happens in the wine cellar what is called in France *vin mi partie clair, mi partie trouble*, which means a low degree of cloudiness, or wine the refining of which proceeds too slowly, and appears to stop at a certain point. The fact has its cause sometimes in the insufficient quantity of material for clarifying, sometimes in an atmospheric adversity, sometimes in an incorrect method of the operation of clarifying. If, for instance, the wine is not in a quiet condition, and shows inclinations to work, it would be far safer to divide the mass of the wine, fill it into well sulphured casks of thirty or at most sixty gallons. A trial should then be made with clarifying one of the casks, by which it may be ascertained which quantity of clarifying substance may be necessary. Too large a quantity applied to wine in large casks may kill the already weakened wine.

Add to the clarifying substance, for refining thirty gallons, one good handful of kitchen salt.—*Wine and Fruit Reporter.*

Fruit Growing in California.—Hon. Marshal P. Wilder delivered a recent lecture before the Mercantile Library Association of Boston, on observations made in a California tour last summer. Of course everything at all connected with the pomology of the State was critically observed. From an abstract of the lecture reported for the Boston Daily Journal, we clip the following remarks on fruit:

"The Luscious Grape.—Next to the cereals of California, no other production of her soil is so important as the grape. In the State there are about thirty million vines, two-thirds at least of which are in full bearing. California seems to be the home of the vine. I do not intend here to discuss the expediency of crushing the purple clusters for the purpose of producing the sweet, poisoned wine, but I do say that it is certain that no other region has such advantages as that State for grape growing and the manufacture of wine. In my opinion she is destined to be one of the greatest grape growing and wine producing territories on the face of the earth. With regard to the culture of this and other fruit, I remark that in the several sections we visited fruit could be produced at much less cost than with us. It is very large and handsome, and nearly exempt from disease and inset. The atmosphere there is so dry that it may remain long on the vines after it is ripe, thus enhancing the opportunities for gathering. And then labor there is quite as cheap as with us. In the Alhambra gardens, situated in the Alhambra valley, we saw bunches of grapes that measured eighteen inches in lenghth, though they were only half grown.

"We saw cherries that measured three and three-quarter inches in circumference; we saw almonds of great size, and one tree was pointed out to us that that had yielded three bushels in one year; we saw pears measuring twenty-one and a half inches by eighteen and a half. In 1853, peaches were first sent to the market, and sold for $5 per dozen; last year they were selling from 50 cents to $1 per bushel. Until last year the fruit was confined to home use, and much of it was lost for want of a market. Now, however, the railroads are brought into requisition, and last fall the orders from the East could not be filled. As a general rule the fruits are superior to ours in size and beauty, far sweeter than ours, but not of such excellent flavor. The large autumn pears are more fibrous and mealy than ours. With the exception of the currant, none of the small fruits are as good as ours. The grapes, two hundred varieties of which are now on trial, are all foreign. With regard to flowers, allow me to say that I know not what flowers bloomed in Eden, but I do not think, whatever they were, that they could have exceeded in stately height, gorgeous hues, or fragrance, those that we saw on Angel Island."

Grapes.

Ed. Pomologist: I see in your February No. a cut of a grape, called Matthews No. 13,—truly a fascinating drawing—but at what season does it ripen? The time of ripening is an important item with us, away up here at the 45th parallel of latitude. As a general thing the Isabella will ripen here, but the occasional failures are a drawback, so that in seeking new varieties we want those only that are earlier than the Isabella.

Now it occurs to me, that in calling notice to a new fruit, it would save time, labor and expense, if the owners address was given in full, that those desiring to address him would be enabled to do so. I go for the best all the time—am wedded to no variety. Anything new and extra nice, that in season will admit of being grown here, I am anxious to give a trial, whether apple, pear, or grape.

Peter M. Gideon.

Excelsior, Minn., March 11, 1871.

Remarks. "No. 13" ripens about with Concord —Address Prof. James Matthews, Knoxville, Iowa.

☞ Read the Chip Basket on second page of the cover, where it will be found monthly.

The Vegetable and Flower Garden.

Garden work for April.

By the Associate Editor.

April is a very busy month, so everything should have been previously prepared for planting. The ground should be made very rich by a heavy coat of manure, and then deeply and thoroughly plowed.

If the asparagus bed was not attended to last month, manure and work up immediately; also sow seed and set out one year old plants for new beds 18 inches by 18, with an alley every third row. Beets, plant a full crop of Early Red Turnip and Long Blood, and a few Bassano for early use. Try the Egyptian Turnip Blood, and Bastian's Extra Early Red Turnip, these are very highly recommended.

Do not attempt to grow cauliflower and broccoli in Kansas, it will not pay. You may plant a few bunch beans the last of the month, but wait until about the 10th or 15th of May for the main crop. Plant Early Mohawk, Early Yellow Six Weeks, and Red Speckled Vallentine, but if you want something extra, plant the Early Stringless and Dwarf German Wax, and for a dry shell bean the Royal Dwarf or White Kidney and Navy bean are the best. The Turtle Soup and Newington Wonder are *humbugs*. For pole beans the Large Lima and Dutch Kaase Knife are the best dry, and the German Wax, (black,) and Giant Wax, (red,) are much the best snap beans known. Cabbage, sow freely in open ground Large Flat Dutch, Large Late Drumhead and Drumhead Savoy, try also the Filderkraut, which is highly spoken of, set out plants from the hot-bed in open ground. Carrots, sow main crop, Early Horn and Half Long Orange. Celery, sow, if not done last month, Dwarf White Solid. Corn, plant Adam's Extra Early about the middle of the month, and the last of the month or begining of May, Extra Sugar, and for the main crop Evergreen Sugar, which is much the best. This should be planted every few weeks through the season. Leek, sow if not done last month. Lettuce, sow in open ground, Early Curled, Royal Cabbage and India Head, and transplant from the hot bed; try the Hanson, which is said to be the best and largest head lettuce known. Onions sets, plant out immediately if not already done, the sooner they are in the ground the better; also sow seed for varieties, (see March No.,) drop the sets in drills about four inches apart, and the rows twelve inches apart. Parsley, sow if not done, Double Curled. Parsnips, sow early, Large Sugar. Peas, plant the main crop of the following, which come in succession, Carter's First Crop, Extra Early, McLean's Little Gem, Knight's Dwarf Marrow, and Champion of England; these we know to be the best both early and late; try also Laxton's Prolific Long Pod, which is very highly spoken of. Radish, sow for succession, Red Turnip, White Naples, and Yellow Turnip. Rheubarb, plant roots, (not seed,) of the Linnæus and Grey Eagle. Salsify, sow. Sage, sow and set out plants. Spinage should have been sown last month to be early. Thyme, sow. Tomato sow in open ground to succeed those in hot bed. Turnip, Flat Dutch, (strap leaf,) sow. Gooseberries should have been planted last month. Strawberries should be set out this month; Wilson's Albany has done the best.

Choice Roses.—Roses should be transplanted early, Madam Plantier is the best white, Queen of the Prairies best red runner, and Baltimore Belle the best white runner, Hybrid Perpetual, Giant of Battles, General Jaquiminot, General Washington, and General Simpson are very fine. All kinds of ornamental shrubery and fruit trees should be planted this month.

Transplanting in the Dark.

By the Associate Editor.

It appears strange that it requires so long a time after a given fact is made known to the public to demonstrate its truth.

In July No. of the *Horticulturist*, 1864, in an article on the "Health and Disease of Plants," we stated that plants transplanted better in the dark, and and gave the reason in the following language:

High, brilliant colored flowers do not fade as soon as others, and all kinds keep longer in perfection by excluding the light. Upon the same principle perishable articles will remain in a better condition and keep longer in the dark; consequently all vegetation is susceptible of undergoing greater changes in that state without receiving injury. According-

ly plants will remove and transplant better in the dark, or by excluding the light from them a short time, which would give the dark of the moon the preference, not from any influence she has, but from the light she reflects.

The reasons given for vegetation being more capable of resisting deleterious influences, and being susceptible of undergoing greater changes when in the above relations, it is in a passive state to the surrounding objects, and has a surplus to give out, like a positive conductor to an electrical machine.

In confirmation of the above facts we find in the *Western Rural* that Hon. J. H. Klippart, Secretary of the Ohio State Board of Agriculture writes to *Hearth and Home* in favor of transplanting plants at night. He says the plants he transplants at night live and grow as a rule, seldom wilting or withering, while almost all of those transplanted in sunlight wither, and many of them die.

Horseradish.---Culture and Profit.

No kind of condiment is more healthy and refreshing in spring time than the horseradish. Both its propagation and preparation for the table are very simple. It is propagated from sets, or rather the roots, cut into sections of four or five inches in length. In planting, a hole is made with a dibble, into which a section of root is dropped, with its top two or three inches below the surface, and the earth packed tightly around. The root is perfectly hardy, and may be taken up in the fall, or wintered in the ground. Its preparation for the table consists simply in grating up the root, and adding thereto a little sharp vinegar.

With market gardeners near large cities horseradish is reckoned one among their most profiable crops. By them it is generally grown as a second crop between the rows of early cabbages or beets, (thus economizing land,) and the plant always finds a ready sale, at good prices, in the neighborhood of Boston. Horseradish is an important crop. Of its culture and profit the *Ploughman* says:

"When the cabbages are cut off, the stumps are to be removed and the ground deeply hoed so as to promote the growth of the horseradish. Once hoeing is generally enough, as the plant now grows very rapidly, and by the end of October or the first of November, it may be dug up, when it is packed in pits to be prepared for market in winter, when there is little else to do. All it wants is to trim off the small roots for next year's crop, wash and rinse in a tub, weigh and pack in barrels.

The average yield per acre is about four tons, and the last five years it has averaged about $200 per ton, or at the rate of $800 per acre. It has sold as high as $250 a ton."

Growing Roses in Pots.

Mr. Podbury of the Geneva Horticultural Society, thus describes how roses may be grown successfully in pots for winter flowering:—"To grow roses in pots for greenhouse or window culture is a very pleasing occupation. To grow them successfully, choose young, vigorous plants, say in April or May, either on its own roots or on Manetti stock; re-pot them in six inch pots, and plunge them in the ground to the rim of the pot; keep them well supplied with water and occasionally give them a little manure water; keep all the flowers pinched off until the middle or end of September; you will then have a plant with six to eight well ripened shoots. Prune them back to a well ripened eye, and shake them clear out of old soil and re-pot them, using a compost of good loam and well rotted manure,—about two.thirds of the former to one of the latter, with sufficient sand to keep from packing hard; soak the newly potted plant well with water, and plunge it again in a sunny spot; and by the end of October you will have the pot full of young and vigorous roots, and the shoots from three to four inches long. Then introduce a few at a time to the greenhouse or window, and by the time the frost has killed the roses out of doors, these will be ready to succeed them, and give you a supply of rose buds without a great expense of fire heat from December to the end of January. By adding a few fresh ones, you can be well supplied with rose buds during the winter months, without a great deal of trouble and expense. The roses best for this purpose are some of the best Teas, Chinas, and Hybrid Perpetuals, always choosing the strongest growers, and freest bloomers."

How to grow the Verbena.

Dexter Snow, who for several years has made the propagation of the Verbena a specialty, says of its cultivation, "To grow the Verbena successfully, plant them in beds or borders cut in the turf, chop the turf well, and thoroughly mix with it a good share of well decomposed stable manure; never on any account plant them in an old and worn out garden soil, as they will most assuredly fail. Give them a change of soil each season, as they do not thrive well two years in the same bed. Let the beds, if possible, be where they will have the sun the entire day. By following the above directions, one may have a Verbena bed that will be a mass of bloom the entire season, amply repaying the care and toil they may require."

Hybrid Perpetual Roses. Pius IX, Sydonia, Triomph de l'Exposition, and Leonia Verger as among the best bloomers of this class of roses. The Bourbons, Noisettes, and Teas are very desirable on account of their profuse and perpetual bloom.

Entomology.

Dr. S. H. Kridelbaugh, Editor, Clarinda, Iowa.

☞Send in the Insects.—Dr. R. is chairman of the Committee on Entomology for the State Horticultural Society, and would take it as a favor to be furnished with specimens of insects from the various localities of the State, by mail during this year. Those sending will please state all they know concerning the habits of the insects sent; what they are found feeding on, etc.

More about the Canker Worm.--In Answer.

Mr. James Redpath, a correspondent of the *Homestead*, of the 3d of March, denies the practicability of destroying the canker worm by the use of the soft, sticky bands around the bodies of the trees, and asserts that the male "frequently carries the female from near the ground, to a place of his own selection for the deposit of her eggs." He also says we intimate that the moths live fourteen or fifteen weeks.

Mr. R.'s experience with this great orchard pest differs from all others of which we have any knowledge, in one particular. He asserts that the male "frequently carries the female from near the ground to a place of his own selection for the deposit of her eggs." Now, we would like to know how Mr. R. knows all this to be true? Would it not be a big job for an insect which is much smaller, to carry one at least one third heavier than itself from near the ground into the branches of a tree? We fear our friend has been misled, as many others have been, by not commencing his work of destruction early enough, and because he has not captured all the females in his bands of tar, if he used them, and we presume he did, he has come to the conclusion that the male conveys the female into the tree.

As to the other error he says we *intimated*, we have to say: Our friend must remember that the moth of the canker worm commences hatching late in autumn, and continues all through the winter, and until about the middle of May; but the greatest number of them hatch from the middle of March to the first of May.

As those hatched in Autumn and during the first two winter months are liable to perish, it may be tolerably safe to commence the use of the soft, sticky bands about the body of the trees the first of February, and continue until the middle of May. Hence we spoke as we did, having no reference, however, to the length of the natural life time of the moth.

Why would it not do to omit scraping and burning eggs, if white wash kills all the missing ones? Why not white wash at once and be done with the pests?

What Insects Do.

Prof. Lattimore, in an article to the American Rural Home thinks a true knowledge of entomology may well be said to be in its infancy, and in support of this position says: "The cabbage-butterfly, recently introduced from Europe, is estimated to destroy annually $250,000 worth of cabbages in the vicinity of Quebec. The Hessian fly, according to Dr. Fitch, destroyed $15,000,000 worth of wheat in one year. The army-worm of the North, which was so abundant in 1861, from New England to Kansas, was reported to have done damage in Eastern Massachusetts alone, exceeding half a million of dollars. The joint-worm alone sometimes cuts off whole fields of grain in Virginia and Northward. The Colorado potato-beetle is steadily moving eastward, now ravaging the fields in Indiana, and only the forethought and ingenuity in devising means of checking its progress, resulting from a thorough knowedge of its habits, will deliver our wasted fields, from its destructive ravages."

Caterpillars.—Those who do not wish to have their trees disfigured by the tent caterpillars should attend to the matter through this month. On small trees the clusters of these embryo insects may be easily detected. They look like a bandage about three fourth of an inch in length around the small twigs, of a brownish cast. They are easily removed by the thumb and finger, without marring the twig. On very large trees this method of riddance is impracticable. Watch for the first appearance of the web, and with a pole in hand with the top end splintered, thrust it into the web and wind it up, worms and all.

The Willow for Honey.—A correspondent of the Rural New Yorker writing from California says: "The willow, of different species, the evergreen oak, and cottonwood as well, produce much saccharine matter, and when run through the laboratory of the honey bee is converted into fine honey. The heads and horns of our domestic animals today are besmeared with the honey dews, as they are driven among the brushwood by drouth and troublesome flies here in California. I have known empty hives to be filled with good honey in the month of January, collected from the willow mostly."

Tent Caterpillars.

As soon as the necessary cuts can be made, articles will be published in this department, giving the Natural History of both *Clisiocampa Americana*, and *Clisiocampa Sylvatica*.

The Western Pomologist.

American Pomological Society. In notifying us of the next biennial meeting of this society, the President, Hon. Marshall P. Wilder, remarks:

"I have just appointed September 6, 7, and 8, for the next session of the American Pomological Society at Richmond, Va. Our Society is almost a quarter of a century old, and has become wide world renowned for its efforts in establishing a Standard of American Pomology. The States have doubled nearly since its formation, and among its representatives may be found most of the distinguished cultivators of the land. In a national point of view, it is our duty to foster and perpetuate this institution, and I trust you will see that the West be fully represented. The great interest manifested in the fruits from Kansas and California at our meeting in Philadelphia, evince the desire felt by the public in the prairies of the West. Already the South are mustering their forces for a grand exhibition of men and fruits, and I hope the rest of the country will do the same, and form us in one great circle of interest and brotherhood."

Entomology—How to Send Insects.

It will be seen by reference to another page that Dr. S. H. Kridelbaugh, a gentleman who has made Entomology a study for many years, has taken charge of the Entomological Department of the Pomologist. There is no subject more intimately connected with pomology and horticulture at the present day than is the study of entomology. The Doctor asks that any insects found depredating upon orchard, garden or farm crops, not generally known, be sent to him for examination and report. For the information of those who may have occasion to forward specimens, we copy from the Entomologist the following directions:

"Insects sent for name should be put up in tight boxes (tin ones are best), loosely packed in cotton wool, if they are dead, or with a supply of the leaves or fruit upon which they feed, if living specimens are sent. Very small insects may be enclosed in a quill, and sent in a letter. All larvæ caterpillars, worms, grubs, &c., must be furnished with a sufficient quantity of their proper food to last them during the journey, as it is often necessary to rear them to the perfect state before the species can be pronounced upon with certainty. Insects in the perfect (winged) state should be killed previous to packing; this may be done by touching them with a litttle brush dipped in chloroform, or by putting them into a bottle or other tight vessel and immersing them a few moments in hot water. Butterflies and moths, whose delicate wings are so easily injured, carry best fastened to a piece of cork or cornstalk pith, by a pin put through the thorax, a little way back from the head; the cork or pith having been previously secured to the bottom of the box with glue or tacks. All insects should be accompanied by a letter, giving such facts in regard to them as the sender is possessed of, never omitting the name or specimens of the plant or plants they are injuring. The cheapest and most convenient way of transmitting is by mail, unless the packages are very large."

Weather, Fruit Prospects, &c., in Michigan.

Ed. Pomologist: We have been having it pretty warm for the season, though no danger is yet apprehended from the swelling of fruit buds. So far as the peach crop is concened it is already given over as a failure in the greater part of the State. So far as I can learn there are a few live buds of late, common sorts, but the finer kinds, especially the early kinds, are mostly dead, except possibly, in portions of the peach region proper, and even there the reports are that the early sorts are pretty badly used up.

Still, if only a tenth of the buds are alive, we shall have a fourth crop of peaches at least. As for other fruits, Western Michigan never had a fairer prospect than at present. Last year the cold storm in April after the very warm weather destroyed the most of the apples in that part of the State. The result is that the trees are full of buds for the coming crop.

And as the winter has been tolerably mild until late in February, the promise for small fruits is also good, except some tender kinds, like the Lawton Blackberry, that with me kills, three winters out of four, and is injured now past recovery. The Wilson's Early is also tender on our heavy soils, though it is successful, I believe, nearer Lake Michigan, as is also the Lawton.

The prospect for a good strawberry crop is not so flattering, as, owing to the severe drouth, the plants went into the winter in a weakened state. Still, plantations that had the best attention and winter protection, are more promising.

Grapes are not grown here to any great extent, and as they are generally protected, and the canes are in good order in the fall, so far there is a good indication of a crop, except with the half-hardy kinds that were left on the trellis.

B. Hathaway.

Little Prairie, Mich., March 17.

Fruit Prospects. *Friend Miller:* Hardy grapes all look promising. The peach, so far as I know, are nearly all killed in the bud. Apple trees are loaded with fruit buds here and around Herman; pear also. Strawberry and Raspberry plants look

well; but the weather is so very warm and everything advancing so fast, that there is danger of a late frost cutting some of our early blooming trees of their crops. Apricots in bloom, violets out, grass growing, bees and flies on the wing, etc. As the season comes on, I may give you notes on the various fruits in their seasons.

I have a seedling Strawberry which I would like to have tried in different localities. Will you accept a few, plant carefully, not let run, and report to me in 1872? I can trust you and a few others. It may not amount to much, but from its first crop, last season, certainly very promising. I named it after our youngest daughter, (Maud Miller.)

SAMUEL MILLER.

Bluffton, Mo., March 10.

REMARKS. Shall be pleased to try the "Maud Miller."

OUT AMONG THE TREES.—I have just returned from a week's ramble among the orchards and gardens in Mitchell County, and find the trees in fine condition, the late growth of last fall all finely ripened, and the terminal buds of our half hardy varieties appear as full of life as those of the Tetofski or Duchess of Oldenburg. We had a very fine autumn and a very remarkably fine winter, for Northern Iowa. The mercury has been at 23 deg. on three different mornings only, during the months of January and February. The average has been from 5 deg. to 20 deg. above zero, and has given us so little winter that some of our veriest croakers begin to think that Pomona may yet be auspicious, and have concluded to plant a few more apple trees the coming spring. Indeed, farmers around here begin to see that planting good trees pays well, and are determined to raise their own fruit.

THOMAS WARDALL, *Stacyville, Iowa.*

FRUIT PROSPECTS.—GRAPES TO PLANT. *Friend Miller:* Weather mild, frost all out of ground, buds and wood of fruit all full and sound. What we may have in the way of too long continued warm soft weather early, or of late frosts no man can tell, but now the prospect of fruit, grass, grain, etc., never was better.

In advising of varieties of grapes to plant this coming spring, permit me to say, that I have lost all confidence in the Rogers Seedlings, for which occasionally a report of them comes in favorable for a year or so. In our locality ninety nine others are against them, and the test of them side by side with others five to seven years in succession has invariably thrown them in the shade. Let me say Concord—Catawba where it suits for the general crop, and for promise take Walter and Croton.

F. R. E.

Cleveland, Ohio, March 7.

THE WALBRIDGE APPLE. *Ed. Pomologist:* I have ascertained at the East from F. R. Elliott and Chas. Downing that the "Walbridge" and "Cogswell" are identical. The trees were planted here about sixteen years since from Ohio. Have proved hardy, even on the open prairie. We cut our first scions from a neighbor's trees, and gave them his name, for the want of a better one, viz: Walbridge. Is the variety that has been looked for in the Northwest for the past twenty years, as it is a good grower, *regular* and *profuse* bearer, perfectly hardy, and keeps through June in ordinary seasons; little above medium. For description, see Downing's New Work.

A. C. TUTTLE.

Baraboo, Wis.

FRUIT AND THE SEASON.—The fruit buds are in a healthy condition in this section of the State, and fruit prospect never better. Our winter has been unusually mild, and a lack of snow has been the only drawback to winter protection to orchards and work in general, and more particularly to the Loggers. The crop of pine logs is far in the rear of former winters. The frost is all out, and wheat would have been sown at this date, only for the recent rains.

I. GUILD, *Beaver Dam, Wis., March* 15.

CALIFORNIA ORANGES.—If we may believe the reports that come from California, the cultivation of the orange there must soon become a very important interest in that state. It is said that during last year 2,466,000 California grown oranges were received at San Francisco. Of the last crop, 55,000 were recently received from Los Angeles and sold readily for $30 to $50 per 1,000.

Perhaps the orange may be grown in California to any extent, but we are told by those who have seen and eaten of the fruit, that in quality it is very much inferior to the Florida and Cuba grown oranges.

Everlasting Flowers.

When the garden is gay with masses of Flora's choicest treasures in summer time, the Eternal flowers, as the Everlastings are sometimes called, are almost unnoticed and unthought of; but when decorations are wanted in winter time, for the home, or church, or school—for festivities or mourning—they are invaluable. They remind us of the pleasant time which will come again, when we can walk in the garden and enjoy the richer growth of summer. If the blossoms are picked as soon as they expand, or a little before, and hung up in small bundles so they will dry without mildew, they will retain their form and color for years, and make fine boquets, wreaths and other desirable winter ornaments.—VICK.

ORIGIN OF THE HAAS.—Charles Waters, of Springville, Wis., stated at the late Minnesota State Horticultural Meeting, that the Haas apple was originated, or at least was first brought to notice in 1804 on the present site of St. Louis. Forty years afterwards the tree was living and bore 30 barrels of fruit in one season, which would prove it a long liver, and its productiveness. Trees are very thrifty. Have always proved hardy in Wisconsin. Have had trees bear in four years from the graft.

SMALL FRUITS FOR ILLINOIS.—At the recent meeting of the Illinois Horticultural Society, Wilson's Albany was almost unanimously retained for general cultivation. Downer's Prolific was adopted. The Doolittle and Mammoth Cluster raspberries were recommended. The Kittatinny blackberry was adopted, the experience of members being that it excelled all others in flavor, productiveness and hardiness. Houghton's Seedling gooseberry was adopted unanimously, as well as the Reb Dutch currant.

MYSTERY OF PEAR BLIGHT.—The causes of this malady have probably baffled the skill of the horticulturist more than the diseases of all other fruit trees together. We readily see how a tree can be killed by a hard winter or a summer's drouth, or by the attacks of the borer; but to see a tree in midsummer that has made a vigorous growth, and is perhaps loaded with fruit, suddenly wither up and die, is to witness a fact not easily accounted for.

NEW WORK ON TIMBER.—We learn from the Galena Commercial Advertiser that Arthur Bryant Sen., President of the Illinois State Horticultural Society, is the author of a work soon to be published, on Timber Culture in the West. Mr. Bryant is acknowled to be one of the best botanists in the country, and is a thoroughly practical man in whatever he undertakes. His book is looked for with much interest, and will meet with an extensive sale

GERANIUMS. A member of the Montgomery (O.) Horticultural Society, says:

"Next to a bed of Bourbon and Tea Roses we want a bed of Horshoe and Rose Geraniums, not only because the former gives a constant supply of brilliant flowers where the right varieties are planted, but because they all give us such an abundance of beautiful, deep green, healthy leaves, which look very refreshing in summer, when other plants alongside of them look stunted and withered from the effects of drouth; but the poor Horseshoe Geranium is not esteemed by many because it is not "rare," and is considered vulgar because our grandmother has cultivated it; yet there is no flower more grateful to its cultivator than the Geranium."

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	1,000	10,000	50,000	100,000
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Norway Spruce seedlings, 2 years, smaller size	4.00	3.00	2.00	1.50
Scotch Pine seedlings, 2 years, 6 to 9 inches	12.00	10.00	8.00	
Ditto, smaller size	8.00	7.00	6.00	
Austrian Pine seedlings, 2 years, 3 to 6 in	10.00	8.00	7.00	
European Larch seedlings, 2 years, 8 to 12 in	9.00	8.00	7.00	
Ditto, smaller size	6.00	5.00	4.00	
FOREST TREE SEEDLINGS.				
Am. Arborvitæ, Hemlock & White Pine, 6 to 12 in	4.00	3.00	2.00	1.50
Ditto, 3 to 6 in	3.00	2.00	1.50	1.00
Balsam Fir, 6 to 12 in	5.00	3.50	2.50	2.00
" 3 to 6 in	3.00	2.00	1.75	1 50
Am. Spruce, mostly white, 5 to 12 in	5.00	4.00		
Red Pine, scarce, 4 to 12 in	6.00	5.00		
Am. Larch, Beach, Birch, 5 to 12 in	3.00	2.00	1.50	1.00
Sugar Maple, 6 to 12 in	3 00	2.00	1.50	1.00
Sugar Maple, 4 to 8 in	2.00	1.50	1.00	75

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THE POMOLOGIST

POMOLOGY, GARDENING, FORESTRY, HORTICULTURE, RURAL ARCHITECTURE, BEES.

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MARK MILLER,
Editor and Publisher, - - *Des Moines, Iowa.*

DR. J. STAYMAN,
Associate Editor, - - *Leavenworth, Kansas.*

DR. WM. M. HOUSLY,
Corresponding Editor, - - *Leavenworth, Kansas.*

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☞It should be observed by advertisers that our columns are much wider than those of news and agricultural papers generally.

Should Trees be Pruned? No 5.

BY THE ASSOCIATE EDITOR.

In our last article we gave the result of pruning trees up to give them form. We shall now give the effects produced in cutting them back in the nursery "to make them grow more stocky," and ballancing the tops to the roots at transplanting "to make them live and grow better," and thinning out the tops to give them more light and air.

In 1859 according to the theory of shortening-in nursery trees, we cut back about ten thousand one year old apple trees which had made a very rapid growth to make them grow *more stocky*, as we then supposed, but left about an equal number which were not cut back.

The result was we retarded their growth, they took much more time and attention, and they were not as large, stocky, or handsome trees as those not cut back, and they never became such.

In 1860 we reset over 100,000 trees, one, two, and three years old, first cutting them back thoroughly, and trimming their roots. The result was we lost over 90 per cent., while another party by our side re-set 20,000 trees of the same sizes and age *not balancing the tops*, and did not loose five per cent.

This great difference could not be attributed to anything except the difference in pruning as far as we then were able to percieve, and numerous experiments since has fully convinced us.

In 1864 we re-set about 200 apple trees and shortened-in a portion of them. The result was nearly all those cut-in are diseased or dead, while those not cut-in are healthy and doing well, except three which were otherwise injured.

In 1867 we had a large number of nursery trees cut back by order of the party who bought them, and intended removing them the following season.

A portion of these trees were left on our hands; some were sold to different parties with other trees not cut back—(of the same lot.) Of the balance left we selected the best which were the least cut back, with others of the same lot not cut-in to the amount of 1,300, and transplanted them in an orchard. The result was we lost over 40 per cent of those cut-in, and scarcely two per cent. of those not cut-in. The balance left we set in nursery rows and did not save two per cent., while we set by their side of the same lot not cut-in, and did not lose two per cent.

Of those sold to other parties and transplanted by them the result was equally as unfavorable with those cut-in, (if not worse.)

Now it must be remembered that these trees were cut-in one year previous to transplanting, while in the nursery rows, and had the addition of a year's growth to heal up their wounds, and were handled by different parties, yet the result was unanimously against the cut in trees. How much less are trees prepared to withstand such treatment when done at transplanting, as generally recommended with near-

ly all their germs of life, the very vital principle cut out of them.

So universally disastrous has been this shortening-in system of pruning, (yet overlooked in practice,) we cannot see how any accurate and experienced observer could contend one moment for its necessity, except upon the principle of strong prejudice or previous erroneous education, for it has neither fact nor sound theory in support of it.

It is nevertheless lamentably true that we have some able writers and authors who not only advocate and support the system but teach and enforce it as an absolute necessity to success.

We have arrived at a period in which we require no such authority. Flowery language and beautiful spun theories will not answer this progressive age.

We want facts, figures, and dates, when, how, and where they took place, then we have no objection to your theories as suitable accompaniments to to them. We have had sufficient fiction, what we want now is reality, and nothing short will suffice. The public have suffered enough by this popular fallacy, and we have also been persecuted and ridiculed sufficiently the last ten years in demonstrating its absurdity, but we live in hope, and it is some consolation to know that some of our most experienced and intelligent opponents have already been converted, and sustain us. It appears to be a hard struggle to give it up, but inch by inch it will have to yield, and then you will look back with wonder and amazement at sustaining such an absurdity.

A few years ago we could hardly be treated civily when we mentioned the subject, but now we find very few who sneer and wink when we discuss it, and these we cannot expect to change as long as Mr. Snooks does their thinking, but what a great pity it is that these poor mortals have not some more efficient weapon to defend their cause.

For a number of years we have been attempting to re-graft some undesirable bearing trees with better sorts; for that purpose we cut off a few of the main center limbs and grafted them in the tops.

The result has been that more than two thirds of the limbs have become diseased or died back to the body of the trees. This has become so common with us and others that we have no hope of ever succeeding in re-grafting bearing trees.

If the grafts grew quickly and rapidly, and escaped the blight of May and June, it was not so likely to occur, but otherwise it almost universally took place. This shows conclusively that there must be kept up a strong vital action in those parts or they will become diseased, whether it is done for the object of re-grafting, or thinning them out for light and air.

We have seen instances where a small center limb, not over half an inch thick shortened-in, diseased the whole limb, and part of the body of the tree which has not yet recovered, although cut off seven years ago.

We have seen whole rows of trees killed by what has been called judicious pruning, and whole orchards nearly ruined by the same practice, yet they were pruned scientifically according to the popular theory. It is very true pruning does not always produce such an effect, but it tends towards it, and if the conditions are unfavorable it may produce sad havoc.

When trees are pruned out to give them form, light, or air, when it does not apparently injure them, it has a tendency to produce numerous shoots and suckers, which increase in proportion to the amount cut away, which requires additional thinning out, and it must be kept up as long as the practice is continued.

This increase of rapid growing shoots and suckers has a tendency to increase the liability to blight, for they are the first to become diseased, which finally affects the whole tree. The same as an over stimulated stomach is more liable to apoplexy.

The Apple.—Its Propagation. No. 4.

By the Associate Editor.

When trees are set close, one protects the other, like in a grove or forest. You have also less ground to go over in cultivation and keep clean consequently more time to do the work well and in proper season. And finally, where trees have been so planted, they have given better satisfaction in health, hardiness, symmetry and productiveness. When trees are grouped in the order herein given, we transplant systematically; consequently, we know each progressive step the final result of every operation. The exact position of the permanent trees being known, you can select for that purpose the best known vigorous varieties, sound and healthy, and take extra care of them, and have an orchard without a missing tree, or a defect. There are many kinds that bear very young, and are desirable for that purpose only. They are defective in their constitution, or of indifferent quality, and ought not to be placed in a permanent orchard, as they would be of little value when better varieties come into bearing. They can be planted in those temporary places between the permanent trees. Again, other varieties are doubtful; we do not know how they would succeed. They also can occupy the same position without producing any defect in the orchard. Those temporary trees you can prune, graft and experiment with to your satisfaction without producing an injury to your orchard. And finally, the extra early bearing trees you plant will come into bearing soon and pay the whole expense, leaving you the permanent trees a clear profit long before they come into bearing; so you have made a clear gain of an orchard by planting thick of early bearing sorts. As those tempo-

rary trees become large and their branches crowd upon the other trees, cut the crowding limbs off, and gradually raise their tops higher, giving them more space, light and air, and so continue by degrees trimming them off, until you find it eventually necessary to remove them, then do so. The average growth of their tops will be about one foot in diameter each year; so the temporary trees may remain 15 years and the secondary 22 years before crowding very much; then by removing those limbs and elevating their tops, they may remain several years longer before cutting them down. When the temporary trees are removed, your orchard will present the appearance of Fig. 3, with eighty-five trees twenty-two feet apart; and when the secondary trees are removed, it will appear like Fig. 2, with forty-nine trees thirty feet apart each way, and then be your permanent orchard.

Having once planted out an orchard, keep it clean afterwards by frequent cultivation, particularly around the trees, until they come into bearing, which will be in about five or six years from transplanting with those early bearing varieties. You may raise potatoes, beets, beans, or any hoed crop amongst the trees, but no wheat, corn or oats, or any high growing crop. After the orchard has come into bearing, sow down to clover and blue grass, and let it form a sod and remain so.

Let your trees head low, from twelve to twenty inches from the ground, and keep them clean of water sprouts and suckers, but do no other pruning whatever, unless a limb becomes broken, then remove it. Be careful of the *spray* and *irregular growing branches*, for it is there where you will find your first fruit. We have seen over a dozen of fine large apples on an irregular limb, when there was not another apple on the tree for several years after; but after the trees come into general bearing, this spray and irregular growth will have fulfilled its destiny, and must die; it may then be removed without an injury. If the trees overbear, thin out a portion of the crowded fruit in the thickest portion of the trees. When any of the branches cease to grow, and they have fulfilled their purpose, it may be necessary to remove them, but not before. This will not be likely to occur the first twelve or fifteen years, except in rare instances, and in a few of the under branches.

Keep a close watch for the round headed borer, (*Saperda Vivitta*). This insect deposits its eggs in the month of June, sometimes July, in the bark of the trees, near the ground, and the grub works its way down and around in the solid wood, where it passes its first year beneath the bark. The second year it is much increased in size, and penetrates a little deeper, doing much more damage. The third year it arrives to its full size, about one inch and a quarter in length; it then gnaws its way up through the solid wood about six inches above the ground, where it cuts its way out horizontally, in the month of June, the perfect beetle, about three-quarters of an inch in length, with two longitudinal stripes on its back, and beneath mealy white. It is shy, and keeps generally concealed by day; but at night is active depositing its eggs, generally in neglected, weedy trees, rarely if ever selecting those mounded up a few inches high and kept clean, as it always deposits its eggs near the ground.

THE BEETLE.

THE LARVÆ.

But there is another flat headed borer (*chrysobothris femoratta*), which deposits its eggs in the trunk of trees some distance above the ground, and also in the branches. This insect selects the south and southwest side of those trees generally diseased or injured by pruning, sun scald, or from injury by the previous borer. As this insect is simply a scavenger, feeding and living on decay, it will never trouble a low headed, unpruned, healthy tree, taken care of. It does not throw out saw dust like the previous borer, but packs it tight after it; therefore not so easily detected. These borers must be cut out with a sharp, strong knife, and when deeply imbedded, hooked out with a flexible wire. The trees should be examined every year in August or September, particularly for the round headed borer, which may be easily detected by the saw dust it throws out near the ground; and by drawing away the earth several inches around, may be easily cut out. Washing the trees with soap the latter part of May is considered beneficial as a preventive; if not, it will add much to the smoothness, health and beauty of the trees. If trees are banked up about a foot high with earth in May, and the weeds kept away from around them, you will not find much trouble with the round headed borer; and if your trees are kept low headed, unpruned and healthy, you will never know there is a flat headed borer.

Hybridizing the Apple.---Russian Apple and Leaf Structure, etc.

By J. L. Budd, Shellsburg, Iowa.

Continued from page 96, April No.

We have here a wide range. About nineteen out of twenty of the hundreds of varieties described by Downing, are so manifestly defective in leaf and habits of early maturity that we will not refer to them. The few varieties, as the Red June, St. Lawrence, Saxton, Gros Pomier, Ben Davis, etc., in the "iron clad" list will surely enable us to grow an abundance of apples upon our most exposed prairies. But let us think a moment. Suppose anywhere upon a dry, open prairie in northern Iowa

we plant fifty acres to orchard exclnsively of the "iron clads."

We give this orchard five times the care that would be given an orchard of the same size at St. Joseph, Mich., and in fifteen years what will be the result? Will our orchard be as uniformly healthy in appearance, will our fruit be as fair and keep as well? Nine out of ten will say "no; but it is the fault of our climate more than of the trees." We do not believe this. We can grow better Concord grapes here than they can grow in Michigan, and we can beat them every time in growing Duchess of Oldenburg, or Tetofski. Why? Simply because the habits of growth of the latter are just right for us; and with the tree just right our dry, pure air will make *better fruit* every time. The St. Lawrence, Gros Pomier, and Ben Davis are as near adapted to our climate as perhaps any in our list. But watch an orchard of such trees for ten years together and we will become convinced that they do not often go into winter in precisely the right condition. If a tree is to keep in perfect health and set and mature its fruit well, it must go into winter with its tissues loaded with the matter for the first development of the leaf and fruit buds the succeeding spring. Year after year even the Ben Davis fails to keep up a healthy action of leaf during the summer drouth, and with the fall rains it rarely fails to extend its growth in the terminal branches, and to deposit new and imperfect woody tissue. True, with the hardy sorts of the apple an extended growth and deposit of wood is not made as with the so called tender sorts. But with all of the Pyrus Malus family the tendency is established to grow more or less and deposit new wood until checked by cold weather. Further than this, we may lay down the rule that every watery, imperfect cell of wood or bark ruptured by winter frosts, *gives rise in the tree to fungus formations.* You will see it in the blighting of the fruit spurs upon the Snow; in the premature dropping of the fruit of the St. Lawrence, many seasons, and even in the entire failure of the fruit crop, sometimes caused by unsound woody deposit and deficient starch stored in the tree in the fall to develop the germs of the fruit. To get at the facts in a nutshell, we raise apples, and with profit, but where would our profits be if we raised them at Michigan prices? What we want—and I truly believe we yet will have—is a class of winter apples as perfectly at home with us, and as free from spot and blemish as the Duchess, Red Astrachan, and Tetofski are as summer fruits.

Plainly and briefly we have reason to believe such a desirable class of winter apples can be produced by crossing or hybridizing our common apple with the Russian. There may be some who doubt that the Russian apples belong to a distinct species. Such would of course think the word "cross" the most appropriate.

LAW OF HYBRIDIZING.

Hundreds of experiments have been made by the botanists of Europe with a view of determining by crossing whether plants were varieties or distinct species. Horticulturists and amateurs of Europe and America have also accomplished much in this direction. An almost invariable principle seems to have been established by these experiments, viz. that if the most positively fixed and established species or variety be used for the *mother* stock, the vitality in the crosses produced will be apt to follow the mother species, and the character of the fruit will follow that from which the pollen is taken.

To illustrate: When Mr. Rogers of Salem, Mass., undertook to hybridize the grape he took for his mother stock the wild, rough, hirsute stemmed, sage grape, of New England. He selected the wild grape because it possessed the inherent vitality that he wished to communicate. He fertilized with the Black Hamburg and White Chasselas grapes that can only be grown in our climate under glass. As he expected, he retained the vigor of vine and leaf of the wild sage grape, and the fruit of his hybrids almost equalled—some say excelled—the hot house grapes he used in fertilizing.

On this principle, if the Tetofski were our mother stock, and the Grimes' Golden or Raules Jannett pollen was used, we might expect an early maturing tree with a leaf and evaporating surface standing any extreme, and a part of the hybrids we might expect to be late keeping apples of good quality and size.

Some may ask why does not *nature* produce such hybrids. The answer is obvious after a moment's thought. If the blossom of the Russian apple retains its own pollen, and *it* becomes mixed with the pollen of a neighboring tree it would produce only a "deflection" from the Russian type of apple and in no case a hybrid retaining the habit of leaf and growth of the Russian, and the character of fruit of the adjoining tree of the common apple. In our experiments in this direction we must carefully remove the anthers of the tree to be fertilized, and after fertilizing with the pollen of the winter apple selected, the whole branch or tree fertilized should be covered with musquito bar or something of the sort to keep off insects. More extended explanations of the modus operandi of hybridizing, can be found in our fruit books than can be here given.

In conclusion we will refer to another plan for improvement of our apple in leaf structure and habits of growth.

The native crab of the West is so widely different in all its habits from our common apple, that doubts have been expressed if it could be successfully hybridized. Those who have carefully studied the fruit and habit of the Soulard Crab tree will see evidence conclusive of a natural "deflec-

tion" of the native crab produced by an admixture of the pollen of the common apple.

Had Mr. Soulard removed the anthers of the native crab, we might have expected results very similar to those obtained by Mr. Rogers with the grape. That is, a class of apples might have been produced with the habit of leaf and growth of the Soulard, and with fruit similar to that of the common apple. Anyway, we may consider the Soulard an advance in the right direction. It is a sport—a break in the fixedness of habit of the native crab—and as such it will prove we hope an admirable mother stock for a cross with our best late keeping winter apples. From such a cross we have every reason to hope for a class of *extreme late keepers*, truly iron clad, that would prove a blessing to the Northwest. We will only say in addition that we have little hope of successful results from crossing with the Siberian Crab. The leaf and bark structure of the Siberian are not better in any respect than is exhibited in the Gros Pomier or Ben Davis. In every respect the Siberian is *too nearly allied* to the common apple for us to expect any decided benefit from a cross with it.

The writer is engaged in some experiments in the direction of hybridizing as herein indicated, and this paper has been prepared with the hope that others will be induced to give the subject earnest investigation and thought.

Electricity and the Growth of Trees.

BY SUEL FOSTER, MUSCATINE.

ED. POMOLOGIST.—I must confess that I do not know much about the growth of a tree. When I begin to investigate into the secret life of a tree, I soon discover a line, the which I can neither discover the beginning nor end. What is the life of a tree, and what moves it into action? Can it be in the earth; the air; the light and heat of the sun; electricity? The last of these elements I would credit least with this work. And yet Dr. Stayman in the February No. says, "By this means the organism is built up by cells elongated by electrical force. If it were not for this power, they might expand in width instead of length. When this force ceases to accelerate their growth, they then commence to swell their buds instead of lengthening them, which produces fruit spurs and fruit."

Is it possible that here is a discovery of the cause of downward growth of roots, and upward growth of top; of barrenness and fruitfulness? If this is so, now can we progress with fruit?

And now having given my disbelief in this electrical phenomena, it is but fair that I should give my opinion of the growth of a tree. A tree grows much as a boy whistles; "it whistles itself." So the tree grows. That is, when the seed of the tree was created, it contained the life and power to *give the tree its peculiar shape;* the oak after its kind; the pine, the willow and the apple after their kind. Not only so, but the seed of the original Bellflower, Greening and Benoni, each with their peculiar shape, and no grafting, time, nor electricity has materially changed their form of growth.

The tree in its growth calls to its aid the earth, the air, with all its gases, electricity, and the light and heat of the sun. What a powerful influence the sun has on a tree. Behold it in the thick wood stretching its neck to its utmost tension to take a peep at the sun as it passes over. Behold it now in open ground, spreading its branches wide in all directions, *for there is plenty of light in all directions.* There lies a board two inches from the ground; turn it aside and see the weeds bending their heads to the light, dividing near the middle of the board as evenly as a maiden's hair is parted on the crown of her head. Let us credit the light of the sun more than electricity with the growth of trees.

Pomological Gossip.

BY JACOB STAUFFER, LANCASTER, PA.

ED. POMOLOGIST: I crave your indulgence, should I, as it may happen, flounder about a bit, before I get into deep water. In the first place, after many years study and labor to collect all the facts on vegetable physiology within my reach, as a botanist I claimed to have a fair knowledge of the subject. I had heard frequent mention of Darwin's works, in such a manner as to consider him promulgating rank heresies. But since my old preceptor, Prof. A. Gray, through *The American Agriculturist*, has to a great extent, endorsed the work, I have given the subject some attention, and find that his facts cannot be gain-said, even if we do object to some of his curious speculations. It is interesting to read his numerous gleanings from all sources on the changes and vagaries among cultivated plants, such as wheat, rye, barley and oats—the improvement arising from the selection of seed corn—which is no new idea, as it was strongly recommended in ancient times by Columella and Celsus, and even the poet Virgil says—

> "I've seen the largest seeds, tho' view'd with care,
> Degenerate, unless th' industrious hand
> Did yearly cull the largest."

I shall not attempt to follow his facts and investigations about maize, cabbages, peas, potatoes, which should be read at length. Nor of the many important observations on the grape, mulberry, orange group, peach and nectarine; and their relation to the almond is remarkable.

Andrew Knight, from finding that a seedling-tree raised from a sweet almond, fertilized by the pollen of a peach, yielded fruit quite like that of a peach, suspected that the peach tree is a modified almond;

and in this he has been followed by various authors. In short it must be admitted that all grades of varieties exist—and pass by small transitions—from the tough skinned peach more like an almond, through cling stones of poor quality, to our best and most melting kinds. The nectarine is nothing but a smooth peach. Yet most of the varieties both of the peach and nectarine reproduce themselves truly by seed, this has been verified to the eighth race of the peach. So with the sub-varieties of our white blossom, several of the yellow fruited free stone peaches, the Blood cling stone, the Heath, and the Lemon cling stone. On the other hand a cling stone peach has given rise to a free stone.

In the Transact. Hort. Soc., vol. vi, page 294—It is asserted that the Boston nectarine was produced from a peach stone, and this nectarine reproduced itself by seed. (Downing's Fruit Trees, page 502.) Mr. Rivers states (Gardner's Chronicle, 1862, page 1195,) that from stones of three distinct varieties of the peach, he raised three varieties of nectarines, and in one of these cases no nectarine grew near the parent peach tree. Of nectarine stones yielding peach trees (both free and cling stones,) six undoubted instances are recorded by Mr. Rivers, and in two of these instances the parent nectarines had been seedlings from other nectarines. With respect to the more curious case of full grown peach trees suddenly producing nectarines by bud variation (or sports as they are called by gardeners,) the evidence is superabundant. There is also good evidence of the same tree producing both peaches and nectarines, or half and half fruit—that is one half of the fruit a perfect peach, and the other half a perfect nectarine. Prof. Chapman states that he has often seen in Virginia, very old peach trees bearing nectarines. Thus, I simply refer to a few of the many facts given that are hard nuts to crack for those who consider the almond, peach, and nectarine as distinct genera, as I and many more like me would naturally conclude was the case. About apricots, plums, and cherries many interesting facts are also given, which I will not review. The subject in reference to the apple (*Pyrus Malus*) of which he says, "The one source of doubt felt by botanists with respect to the parent age of the apple is whether, besides *P. Malus*, two or three other closely allied wild forms, namely, *P. Acerba*, and *Praecox* or *Paradisiaca*, do not deserve to be ranked as distinct species. The *P. Praecox* is supposed by some authors to be the parent of the dwarf paradise stock, which, owing to the fibrous roots not penetrating deeply into the ground, it is so largely used for grafting; but the paradise stock it is asserted cannot be propagated true by seed. The common wild crab varies considerably in England;" (so do our native crabs, wild species, with some of the leaves irregularly cut-toothed, or even lobed like, the *P. Coronaria*, a most beautiful flowering small tree, very fragrant, and truly ornamental, as also the narrow leafed crab, *P. Augustifolia.*) "Every one knows the great difference in the manner of growth in the foliage, flowers, and especially in the fruit, between the almost innumerable varieties of the apple. The pips or seeds differ considerably in shape, size and color. The various adaptation for eating, cooking and keeping is referred to, the bloom like that on plums, which especially occurs among those cultivated in Russia. The White Astrachan of Russia possesses the singular property of becomeng transparent, when ripe, like some sorts of crabs."

The *Api Etoile* has five prominent ridges, hence its name; the *Api Noir* is nearly black; the *Twin Cluster* pippin often bears fruit joined in pairs. Here I will refer to a colored drawing now before me, made of a cluster of ten full sized apples, much like a bunch of grapes, in close proximity,—grown on a tree belonging to Henry K. Denham, four miles west of Lancaster, Pa., and brought to me by Mr. Jacob Rotharmel, September 15, 1862. I question whether this feat has ever been surpassed in the pomological line for size, beauty, and perfection of fruit, so prolific and crowded that it would seem impossible for them to mature, as they certainly did, and hang on while being handled freely. Among other things I find the following, (having to skip some matters about the cross between the Golden Hervy and the Siberian Crab,) respecting the famous St. Valery apple. The flower has a double calyx with ten divisions, and fourteen styles surmounted by conspicuous oblique stigmas, but is destitute of stamens or corola. The fruit is constricted round the middle, and is formed by five seed cells, surmounted by nine other cells. Not being provided with stamens, the tree requires artificial fertilization; and the girls of St. Valery annually go to "*fairie ses pommes*," each marking her own fruit with a ribbon, and as different pollen is used the fruit differs, and we here have an instance of the direct action of foreign pollen on the mother plant. These monstrous apples include, as we have seen, fourteen seed cells; the pigeon apple, on the other hand, has only four, instead of as with other apples, five cells; and this certainly is a remarkable difference. It is found that in lots of seedlings raised from certain kinds, many worthless, crab-like seedlings will appear. Yet it is a mistake to suppose that with most varieties the characters are not to a certain extent inherited.

The foregoing may seem highly questionable to many of your readers. I confess my study as a botanist in classifying plants by the rules laid down in the books puts me into *deep water*. When I get in among the hybrids and crosses of the ornamental flowers and cultivated fruits, I am "out at sea,"

without chart or compass—and all my knowledge of botany will not help me out. True, I need not err as to the order, but some genera are so mixed up and modified in their species and varieties as to be perplexing. We must naturally conclude that there are laws that govern the assimilation of plant food, so as to produce modified action in the cellular tissues of the plant or fruit, or both, aided by electric, atmospheric, and other conditions. Thus giving to man a stimulus to be a co-worker with the Author and Giver of every good gift, and by a judicious use of the one talent given to the husbandman, he can return ten when called to a reckoning. So that Darwin's theory nor his facts chang one jot or tittle the eternal truths, whether we understand them or not.

Early Richmond—What is it?

BY J. L. BUDD, SHELLSBURG, IOWA.

Ed. Pomologist: Allow me to say a word about "Quercus" and his verdict in regard to naming cherries. He says Downing is standard authority, and Downing says the proper name for Early Richmond of the West is *Kentish*. Now "Quercus" doing duty as *critic* must be careful. Downing *does not* say Western Early Richmond is the Kentish. But he does say that the cherry brought to Long Island by the father of Wm. R. Prince, and disseminated at the East as the Early Richmond, is the veritable and true Kentish. Upon page 479 of Downing's new work, "Quercus" will find the words we here quote. "The Early May, of Illinois and the West, is probably a distinct sort, and by some considered identical with our Kentish or Early Richmond. We have had no opportunity of comparing them."

Now Downing wrote these words a long time since. If "Quercus" should ask Chas. Downing, F. R. Elliott or Barry to-day about the identity of the Western Early May, Early Richmond, Ragan Cherry, Virginia May, or whatever you please to call it, with the Kentish, he would be told that the two varieties were totally distinct in habit of growth and of fruiting. He would also be told that no one ever thought or wrote that the Flemish might be identical with either the Eastern or Western Early Richmond. How "Quercus" could make this blunder is more than I can comprehend. The Flemish Cherry is the most odd and distinct of all the Morello Cherries, and a blind man could hardly mistake it.

Surely, "Quercus" must be more careful. He probably had in mind the Donna Maria of Elliott. I think there is not much doubt but this cherry—now much lauded at the East—will prove identical with our great western market sort. So far as I know, this is the general opinion of those who have given the matter close attention.

The Extinction of Species.

BY A. VEITCH, NEW HAVEN, CON.

Ed. Pomologist: It has been lately asked "why have the many extinct specimens which geology proves, ceased to exist?" and we believe a satisfactory answer to that question would be interesting to many who hitherto have only been able to guess at the causes which wrought such havoc amongst the primitive forms of vegetation. We are well assured of this having been the case, but that it took place "for the want of the cultivated and wise directed hand of man to prolong their existence," is an assumption unsupported by all the evidence which can be gleaned from the records of the past.

Palæontology teaches that at the close of the Azoic time, or when the conditions upon which the life and sustenance of plants depend came into play, tribes of the lower orders such as sea weeds, club mosses and the like took their places upon the stage, and fulfilled the important mission of rendering it possible for others of higher type and organization to subsist. So we find as age succeeded age, great and important changes took place in the Vegetable Kingdom by the introduction of new species and generas, and the extinction of many that were old. But not until late in the Tertiary were all of those productions ushered into being, upon which man in common with herbiverous animals subsist. This fact, taken in connection with the other written in indellible characters upon the rocks, and finely illustrated by every hill and hollow which diversify the surface of the globe; that from the beginning of the ages down to the time immediately preceding man's appearance, revolution and change prevailed to so great an extent as to render the earth a most unfit residence for him. The time for the fellow worker was not yet come, and therefore his services were neither required nor could they have been of any avail. Moreover, it is hard to believe that it was in consequence of his absence from the scene that the Sigellarea and Calamites, the Lepedadendra and Conefers of the Coal period became exciting; and as the conditions of their existence in no way depended upon him, much less with all his boasted skill and resources could he have stayed for a day the march of events which bore them down to death. This seems to have been brought about not so much by the running down of vital force, or the strong crowding out the weak, as by such agents as shake the earth from center to circumference; which displayed their power by shifting and re-shifting the beds of seas; and which surely, were more than sufficient to bring to a pause, more or less sudden, the luxuriant vegetation of the coal period. And besides, there is geologic evidence to show that it was through violence and convulsion

untold numbers of both plants and animals made their exit; although at the same time during the onward flow of events the conditions necessary to the existence of such plants as then luxuriated, became greatly changed—changed it might have been by the lowering of temperature, terrestrial and atmospheric, and likewise by the withdrawal of carbon from the atmosphere, thereby unfitting it for the support of those unique forms which graced the jungles and suppressed slopes of the carboniferous age.

What has been said in reference to this particular period applies with equal force to those succeeding, down to past-tertiary times, and therefore the wonder need not be that so many species have ceased to exist, as that so many have been preserved.

And so, we think, no apt illustration can be drawn from what took place during those times as to the continuance of existing species. These, so far as can be known, exhibit no greater signs of extinguishment than does man himself. But when we come to varieties obtained by artificial crossing and culture, the case may be somewhat different; not so much in reference to their durability as individuals, as in the permanency of those traits which distinguish them for use, or for show. In some instances the tendency may be in the direction of progenitors less distinguished than themselves, although more perfect as natural productions. The evidence is not very clear however that this even ever takes place to any appreciable extent, provided they continue to be cared for as the nurslings of men. Indeed, "there seems no known law fixed to determine the length of time which any single species or any single variety endures."

Some men will have it that the varieties of cultivated fruits and flowers are constructed somewhat on the plan of a clock, every pin and wheel, and tooth of which becomes the worse for the wear, and after serving its day is fit only for destruction, or the lumber room. But a clock can not be re-produced by bud and scion as a plant can, therefore this power, for aught we know, may continue it in youthful vigor so long as the conditions under which it was produced are maintained.

We have often met with statements tending to show that this or the other variety of fruit or flower hath lost some of those characteristics for which it was once distinguished. Now it is an apple or a pear in a given district that has become worthless; or a rose—such as the fine old Duchess of Sutherland, H. P., which blooms not as she was wont when fresh with the dews of youth. Well, even admiting this to be true it does not necessarily follow that varieties reputed to be on the downward track exhibit such symptoms, wide as they are cultivated. If they do not, deterioration or degeneracy must proceed from some cause or causes local only in their range, and therefore not inseparable from the individuals so affected.

For a goodly number of years I have endeavored to make out how much truth there is in opinions, such as we have stated, but have been able to make so little of it, that for all practical purposes the question may be laid aside as not sufficient to unsettle the resolve to seek by all intelligent means the highest attainable perfection in all garden productions. At the same time there are limits beyond which this cannot be carried, there are limits too, it would not be desirable to pass; and I sometimes think there is adisplay of bad taste and worse judgment in striving after imaginary varieties of fruits and flowers whilst so many meritorious individuals suffer from neglect or maltreatment. But whatever steps may be taken in the direction of amelioration, or in obtaining new varieties, no real advantage can be gained for any country, or section of country, unless species or varieties are selected to grow and propagate from of sufficient hardihood, not only to endure but to flourish in the climate.

Whatever may be the ultimate result of such endeavors cannot now very clearly be seen, but we believe nevertheless delicious fruits and fragrant flowers will continue to gladden the men and women of the coming centuries as they have done those of the past. But whether or not any of the varieties known to us will go down to a late posterity I cannot tell—they may, for anything which now appears, if not superseded by others held in greater esteem.

Hardiness of the Wild Goose Plum.

Ed. Pomologist: In the April No. of the Pomologist, "Quercus" asks me the question whether the Wild Goose Plum is as hardy as the Miner. I will say that I have had but one year's experience with the Wild Goose, and therefore cannot say positively in regard to its hardiness, but from the way it came through the last winter, I am of the opinion that it will prove hardy enough to bear a crop of fruit, say four out of five seasons. At least, it wintered much better than the Lombard by its side. I will say right here that the last winter has shaken my faith considerably in the hardiness of the Lombard. My Wild Goose trees were set in the spring of 1870, and the wet, late, warm fall caused them to grow so late that the wood was not well ripened up for winter; consequently, I do not think the last winter a fair test of the hardiness of the Wild Goose, at least on my grounds. I do not think it will prove as hardy as the Miner, and in fact, I know of no plum that does. H. A. Terry.

Crescent City, Iowa, May, 1871.

The Vineyard.

Vineyard Work for May.

By the Associate Editor.

In this latitude May is a very busy month, so all previous work should have been completed. When the mean temperature has reached about 65 degrees and the new shoots have made six inches growth, the first pinching should commence, and all the leaders should be taken off just beyond the last bunch of fruit, leaving one leaf to each bunch. But the shoots from the spurs intended for fruiting the next season should be allowed to grow about twenty inches long, then they should be pinched back to two or three buds, and from these let as many laterals grow as are needed for fruiting, they will be found much better than if not stopped. This subject has been discussed elsewhere in the Pomologist, illustrated by diagrams.

Keep all the suckers off your vines as fast as they start, and stir the ground frequently in dry weather and keep it clear from weeds. The trenches should be filled up as the layers grow, with fine soil. New vineyards should be well cultivated, and the vines tied up. Vegetables may be planted between the rows. The grafts should also be examined, to see if any suckers start. If so, dig down and take them off close to the stock, but be careful not to disturb the graft.

For the horizontal spur system of training it requires the bearing and renewing shoots trained upright and tied to the trellis as they grow.

The fan system requires the bearing shoots equally distributed over the trellis, and the renewing canes trained up in the vacant places.

The bow system requires the bearing cane bent in a bow and tied to the stake, and renewing canes trained upright to renew the bows.

The spiral system has the bearing canes twisted tight around an upright post, and renewing canes trained upright to replace the spiral each year.

In all these systems the pinching should be the same as described above. Although we have mentioned them, we do not recommend any but the lateral cane horizontal renewal system, described elsewhere.

If the temperature of May is very high the grapes will bloom in the latter part of it, and the laterals will have pushed out at the axils of the leaves. If so, they should be pinched to one leaf each.

Foreign and Native Grapes.

by S. J. Parker, M. D., Ithaca, N. Y.

Ed. Pomologist: In the comparison of the one single species of grape with the five or six varieties of grapes of the American Continent, we are apt to forget that all is old with the former, and all is almost new and unchanged with our grapes. Yet he who asserts that no improvement has lately been or can be made in the crossing and seeding of foreign varieties, but shows his own ignorance. He, too, who does not get and eat the splendid new foreign grapes, and put them in his glass grapery in place of the older varieties, is equally ignorant and stupid, in my opinion. For example, the words "Black Hamburg" are on the lips of every man, woman and child, as the by-word of foreign excellence. And that grape is an excellent one, yet the Muscat Hamburg, a recent cross of the Muscat of Alexandria and the black Hamburg, is so far in advance of the old Black Hamburg that it ought to drive out two-thirds of our Black Hamburgs; and it would do so but for the silly stupidity (to use the mildest phrase I can and be decent) of our glass grapery people. This I have a dozen times said in the *Country Gentleman* and elsewhere, yet I dare say not a dozen vines are changed for it. The world is an old fool (there! I came near using an appropriate phrase at last) that it wont learn faster. We cling to old things. We learn only by the hardest. I could name a score of recently originated foreign sorts that beat all to pieces the older foreign sorts, yet we must "bray in a mortar" even good men, so dull are they to get these new fruits introduced.

Again, he is behind his day who says that any American grape, in any just sense, equals the best foreign varieties. Now we have not an American grape that has a flavor at all equalling them, nor the fleshiness of them, nor the delightful aromatic sweetness of the foreign. I will come right out and say he is a dullard that don't know that!

Yet in saying these two things — that, first, equal advances in excellence with the improvement of our natives are made in the foreign; and, second, that we have not and cannot, for I know not how long, approach the foreign in their delightful, choice, refined flavors, I am not condemning what we, as Americans, have or can do. This my friends well know, who have read my scores of pages on improvement of American grapes. And what I say now is only to stimulate to further seeding, crossing and subduing our natives to that high standard they are sure in the end to reach. I am only, in fact, recommending that as we have not over twenty-five varieties that are worth a place in our esteem, of all the hundreds of American varieties that in the last twenty years have been proven, we must go on, do better. That each and every western man must help do the seed-planting and the rearing of at least a score of new grapes, new apples, new pears, new fruits of other kinds too. That crosses and re-crosses must be made for the western mountain sides, as well as prairies. That Oregon and California, and other vast oceanic and midland States must get the newer and better foreign varieties. He who in California has a vineyard of Muscat Hamburg, or Wm. Carpenter, will have grapes such as he never saw before. He who in Oregon or Utah has the Diana Hamburg, will eat what he cannot over praise.

*Grape Growing and Wine Making on Lake Erie.

Sandusky is pre-eminently the great wine and grape mart of the United States. Situated very nearly in the centre of the largest and best grape-growing district on the continent, it becomes the headquarters of the American wine trade as a matter of course.

I have taken some pains to gather from the freight agents of the different railroad and steamboat lines centering here, and others, all the facts in relation to the business that may be of general interest.

The number of houses engaged here, not counting those that press one thousand gallons of juice or "must," is thirty-eight. Mr. E. J. Parsons runs three presses, and has pressed this season forty thousand, nine hundred and forty-six gallons of juice, and shipped four hundred and ninety-eight tons of grapes to Cincinnatti; and his is but one of the thirty-eight grape and wine houses of Sandusky. He has two presses yet in operation, and about thirty tons of grapes on hand to be pressed.

The American Wine Company of St. Louis has a branch house here, with three presses, which have produced this season seventy-eight thousand and fifty-four gallons of juice. This company has also purchased the entire product of the Parsons and other presses, and have about one hundred tons of grapes on hand to be pressed.

The Sandusky Wine Company have pressed this season one hundred and twelve thousand gallons of pure juice. They have in their cellar one hundred and fourteen casks, holding from seven hundred and fifty to one thousand, three hundred and fifty gallons each, but on on average one thousand gallons. All but two are full.

I give the details of the three largest houses, to show the magnitude of the trade. I need not give the particulars of the other thirty-five houses, but will state instead, the aggregate wine and grape business of Sandusky during the present season. Here it is:

		Gallons.
Pressed within the city limits,	Catawba,	609,000
	Isabella,	69,000
Put-in-Bay Island,	Catawba,	140,000
	Isabella,	9,000
Bass Island,	Catawba,	90,000
North Bass Island,	Catawba,	61,000
Catawba Island,	Catawba,	56,500
Peninsula,	Catawba,	63,700
	Isabella,	6,000
Catawba and Isabella Wines,		1,104,200
Ives Seedling, Virginia, Norton and Concord grape wines,		5,200
Total,		1,109,400

As there are over one hundred and thirty tons of grapes yet to be pressed, the total wine product of Sandusky this year will reach very nearly one and a quarter million gallons of pure grape juice. How much wine may be eventually made from it I have no means of knowing. I have reason to believe that the largest portion of it will be put upon the market without adulteration. A few more seasons like the present will make pure wine cheaper than the counterfeit.

The grape crop this year has indeed been wonderful. People mention a hundred tons of grapes, as though smaller lots were hardly worth considering. One of the numerous steamers that ply between this port and adjoining Islands, has brought on an average fifty tons of grapes per day, during the past six weeks.

Besides the grapes used in making wine, there have been shipped from here by railroad during the present season over thirteen hundred tons, as follows:

By Lake Shore Railroad, East,	298	tons.
By Cincinnati and Sandusky Railroad,	785	"
By Baltimore and Ohio, (branch) South,	236	"
Total shipped by Railroad,	1,319	tons.

Those shipped East by Lake Shore Railroad were for table use; the remainder were used to make wine.

The crop this season has been uncommonly good, but the vines are older, many of them just commencing to bear, and, as a matter of course, the product has been larger than ever before. It is estimated that over one hundred and fifty tons of grapes are now rotting on the vines within twenty miles of here for want of hands to pick them. A much larger yield may be expected next year, when the growers and manufacturers will both be better prepared.

THE WINE CROP OF FRANCE.

Large as the figures that I have given in the above may seem when viewed alone, they are small in comparison with the wine statistics of France. In 1869 there were over five millons of acres of land in France devoted to the cultivation of the grape, and the wine presses of the Empire produced over eight hundred million gallons of wine, valued at about eighty-three millions of dollars. The yield of some of the best French vineyards is over four hundred gallons per acre.

It seems fortunate that now, when our foreign wine supplies are cut off, the American wine grower comes forward to fill the vacancy.—*Wine and Fruit Reporter.*

Grafting in the Bark.

We promised our readers last summer, that we would report on the success of a new process of grafting, which we, at least, tried for the first time on the vine, although we had often practiced it on fruit trees. It is crown grafting, or grafting in, or rather *under* the bark.

We were detained by press of work last spring from cleft grafting, at the usual time, which is the latter part of March. When we tried to do it in May, the vines bled profusely, and the bark slipped easily, as well from the stock as from the scion, which made the operation both disagreeable and difficult. The thought struck us, "Why should not vines grow, grafted under the bark at the proper season, as well as fruit trees?" and we forthwith tried the experiment. We cut our scion with a long sloping cut on one side, so that the inner or wood side presented a smooth or flat surface, tapering gradually to the bark. We then cut the stock off square a few inches below the surface of the ground, made a perpendicular incision in the bark, as in budding, and lifting the bark slightly, we pushed the scion, with its flat side towards the wood, down under the bark. If the stock is large, two scions may be inserted, if small, one will be sufficient. We then bandaged tightly and smoothly with basswood bark, and filled up with ground around and over it, filling up to the top of the scion.

The success was very gratifying, enough to convince us that it is a surer, as well as an easier process than cleft grafting. The scions should be kept in a cool place, and as dormant as possible for this process, and the operation may then be performed with safety, even as late as June. Of course the bark must part readily from the stock when it is done.—*Grape Culturist.*

Grapes in Oregon.

By A. R. Shipley, Oswegg, Oregon.

Ed. Pomologist: For years we had no grapes in Oregon except the Los Angelos, Isabella, and Catawba. and even the cultivation of these was not very well understood. They failed to ripen except in favorable seasons and locations, and when they did ripen they were sour compared with the sweet grapes from California. So the people generally came to the conclusion that Oregon was not a good country for grapes, and but few were planted. But in the course of time varieties of the earlier foreign grapes were brought to the country, and were found to do well. The Delaware, Concord, Hartford Prolific, Allen's Hybrid, and others of the natives were tried and were found to succeed, ripening their fruit early, and all without the slightest symptom of disease. Since then the planting of vines has increased from year to year, till now almost everybody wants to plant a few vines. At our last State Fair some 50 varieties were exhibited, all well ripened, and of unsurpassed flavor and size. Owing to our cooler climate our grapes are not as sweet as the same varieties raised in California, but they are higher flavored, and have a great deal more character.

Cropping Vineyards With Clover.

It would seem that there must be some progress in the art of grape culture in this country, judging by the number of new ideas that are advanced, and new modes of practice adopted each year. But unfortunately we all find, as our experience advances, we have to unlearn much that we supposed to be true knowledge, and those who should be our teachers are painfully conscious of their own want of knowledge on the subject.

At the meeting of the Ohio Horticultural Society, for the inspection of vineyards, at Vermillion, last August, much interest was manifested by the large party of visitors, on finding several instances where

the vineyards were cropped with clover, among the grape vines, with supposed good results as a means of preventing mildew and rotting of the fruit. A variety of opinions were expressed in regard to the manner in which the clover was supposed to operate beneficially — the common opinion seeming to be that it was by means of its shading the ground during the hottest season, and hence it was recommended that the clover should be cut when its growth was mature, and then left as mulch upon the ground between the rows of vines.

A different theory, however, was suggested by the writer of this: that as the clover roots penetrate deeply into the soil, the thousands of clover plants operate as so many little suction pumps, drawing off the superabundant moisture from the roots of the vines, where, as is well known, it is the most common cause of rot in the fruit. If this theory is correct, the clover system will be found most beneficial on flat or moist soils, especially such as have mellow subsoils, where the grape roots penetrate deeply into the moist earth, as is the case with most of the vineyards on the sandy soils of our lake shore. In corroboration of this theory, I mentioned the fact that in my own vineyard on a sandy slope, a dozen or more bearing vines grew near a very large cucumber (magnolia) tree, where the entire moisture in time of drouth seems to be sucked out of the soil by the roots of the tree, but these vines ripen each year earlier and have better fruit than any others in my vineyard of several acres.

At my request, Mr. Chas. B. Summers, of Vermillion, has written the following report of his experiments and observations in this line, for the benefit of the Ohio Horticultural Society. If any of the readers of the *Ohio Farmer* can furnish additional facts of the kind, I hope they will make them public.

CLOVERING VINEYARDS.

My attention was first called to this subject by the successful practice of Messrs. Driver & Sons, of this township, who commenced the practice seven years ago, by seeding down three acres of Isabella vineyard, which remained in clover three years, and during that time produced excellent, and I may say extra crops. The location was within two hundred yards of the lake shore, on flat clay land, very rich, and imperfectly drained on the surface.

Three years ago this spring, I seeded down one acre of vineyard — Isabella and Catawba, mixed — and left one acre adjoining of same varieties and same soil, which was cultivated in the ordinary manner. Location similar to the preceding, but soil of darker color and with a slight admixture of sand in some parts. Subsoil in some parts stiff clay, others sandy, and some clear sand; surface level, and imperfectly underdrained, very rich, and capable of producing one hundred bushels of corn or forty bushels of wheat to the acre.

The first season after seeding was a poor grape season, and there was no perceptible difference in the product of the two pieces. The next season the clover piece was much the most productive, the vines not making so rank growth as on the cultivated piece. Last season the clover piece produced at least one-third more per acre than the other, and he fruit of finer quality, no rot or mildew appearing on the fruit or foliage. The growth of vines was not over half so great as on the cultivated part, where some mildew and rot was also visible.

We had a very severe drouth during May and June, which had it continued, would no doubt have materially injured the part cropped with clover. As it was the leaves began to turn yellow about the middle of June, but timely rains soon restored their health and vigor.

I mow the clover twice in the season, leaving it around the vines as mulch. I do not think there is any great saving of labor by this method, excepting in the amount of summer pruning, which is much lessened by the effect of the clover checking the growth of the vines. I intend to break up the clover this season, and will report the result. I have fears that the effect will be an excessive growth of wood, thus proving a detriment to the crop.—*Cor. Ohio Farmer.*

Spring Management of Wines.

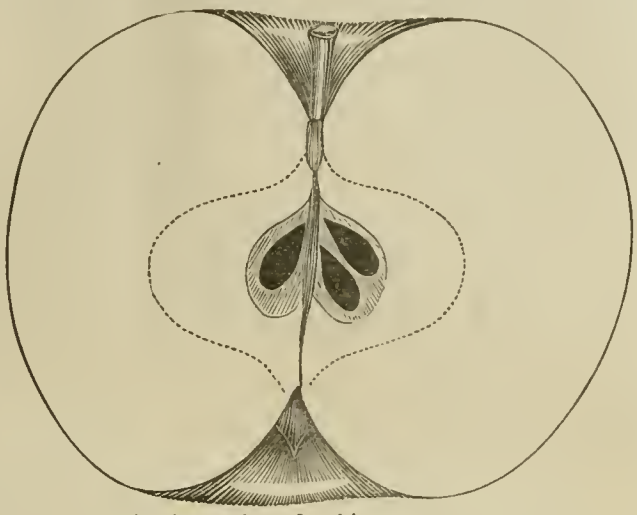
It is generally in the spring that the most serious mistakes in the handling of wines are made, and a few hints on this subject may not be uninteresting to our readers.

If they have followed our advice, as we trust they have, and racked their wines in mid-winter, and have fermented them in the proper temperature in the fall, they should be perfectly clear in March. They should now be carefully racked again, before warm weather sets in, and only so fas as the wine seems perfectly clear, should it go into the other cask. As soon as it becomes muddled, it should be separated, and all these cloudy wines of the same or a similar kind, may be put into a cask by themselves. They will generally become clear in a week or two, and should be racked again.

The casks should, of course be perfectly clean and sweet, and may be slightly fumigated with sulphur, or about half a nutmeg may be burnt in them, especially if they are red wines. Fill up well, and keep carefully filled, and you may safely trust your wines through the summer, even if the temperature should vary somewhat. Thoroughly fumigated wines, even if subjected to fluctuations of temperature, will remain bright and clear, if they have been carefully racked. But if any lees remain in them, of course fermentation will set in, and they will be unpalatable as soon as warm weather commences.—*Grape Culturist.*

Lallier's Prolific Red.

Fruit medium; weight from five to eight ounces; form round, flattened at the ends; skin dull red, mixed and striped with crimson and grey, in the shade greenish yellow; dots small, numerous, elevated, distinct, giving a rough appearance; stem medium, rather slender; cavity narrow, deep, regular, russeted; eye small, open; basin narrow, shallow, ribbed; core medium, wide carpels large; seeds medium, oval dark brown; flesh yellow, tender, juicy, pleasant, mild sub-acid; quality very good; use, table and market; season, November to April. Tree regular, spreading, medium in growth, *very productive*, healthy, no blight, bark dark chestnut, speckled, leaves rather large, numerous, thick, dark green, buds prominent, end of shoots woolly.



This is a seedling raised by Mr. Eugene Lallier, of Leavenworth, Kansas, from seed brought from France. It is so very productive and in season so long, and so free from disease—standing by many other varieties badly blighted, we believe it worthy of cultivation, at least for this country.

Ass't Ed.

Arsenic for the Canker Worm and other Leaf-Eating Insects.

BY JOHN SMITH, DES MOINES.

Ed. Pomologist.—In the March number of the Pomologist appeared a valuable article on the canker worm. As a preventive of this orchard pest, the information there given is all-sufficient, but as this pest is constantly spreading, and making its appearance annually in new localities, no doubt many of your readers will, in the month of May, find it for the first upon their trees, while many others, familiar with it in years past, will have neglected to use the proper preventive early in the season. For the benefit of such I will give my experience in ridding my trees of the worms.

Some years ago my orchard was nearly destroyed by this worm before I could learn how to protect my trees from its depredations. I at last used the bandage and tar process with perfect success; but in the spring of 1868, in the hurry of other business, I omitted it. The consequence was, my trees soon after putting out were alive with worms. It occurred to me that an application of hellebore or some other poisonous substance thrown over the trees in a liquid form, might check, if not destroy them. I made the experiment on a small scale with hellebore, arsenic and strychnine. A half pound of arsenic and a bottle of strychnine were dissolved in about four gallons of water in separate vessels, and each applied to ten large trees. I also used two pounds of the crushed hellebore in the same way. In a few days the trees to which the arsenic and hellebore were applied were entirely clear of worms, and putting out new foliage; but the strychnine had no visible effect. As the hellebore and arsenic seemed to be equal in effect, and the former costing fifty cents per pound and the latter but twenty cents, I determined to dispense with the hellebore on the score of cheapness. And now for my operations on a larger scale.

Take a large iron kettle, holding twenty gallons or more, hang it on a pole in the orchard; to twenty gallons of water add a half pound of arsenic, build a fire under it, stir the water, and by the time it comes to boiling heat the arsenic is dissolved; empty into barrels, or a large cask, and add thirty gallons of clear water to each twenty.

I used a hand force pump or garden engine to sprinkle the trees, the nozzle of which I hammered flat-wise so as to cause the water to issue in a fine spray. I screwed the pump to the bottom of a kerosene barrel, and so fixed the handle as to work it like a common pump, the handle resting on the side of the barrel for a fulcrum. This was placed in a two-horse wagon, filled with the arsenic water and a close fitting lid or cover put on to prevent slopping out. With hose in hand, a steady team and driver, and a man at the pump, I moved slowly along on one side of a row of trees and then turned

on the other side, wetting the trees thoroughly. I found that one application did the work, for every worm was on the sick list within two hours. Within two days I found it difficult to find a single live worm. One gallon of the arsenic water is sufficient for a tree fifteen feet through the top, if properly applied.

It is necessary to be careful about inhaling the steam of the arsenic water when preparing it. Care should also be taken not to get wet with the poisonous water. Have the hose of the pump long enough to reach above the head. The best time to operate is when the largest worms are about two-thirds of an inch in length. At that stage of growth the worms are nearly if not quite all hatched out.

I believe that arsenic water prepared in the way I have used it can be used successfully in destroying all leaf-eating insects, for with one single application to my orchard the canker worm was most effectually exterminated.

Pruning, Spontaneous Generation, and Butcher Bird.

By Wm. P. Lippincott, Vernon, Iowa.

Ed. Pomologist.—I have been rambling among the trees, fruits and flowers of the last Nos. of the Pomologist, and will venture a few remarks on some of the things I saw.

Dr. Stayman's article against trimming at the time of transplanting is really pleasant to read, but I cannot agree with his theory. It seems to stand to reason, that if a part of the roots are destroyed, enough of the top should be taken off to make a balance between the two. Somebody asked, if a man should lose his legs, would you cut off his arms to make him whole? The article,—"Gleanings on Pomology," page 71, says—"The art of pruning was suggested by observing the more vigorous shooting of a vine after a goat had browsed on it." There is certainly less chance for a tree to live with the air and sun drying up its moisture faster than the scanty roots can supply it; but bring the roots and top to a balance, or thereabouts, so that the surface of evaporation is not greater than the supply, and there is a better chance to live.

The "Kansas State Agricultural Society" gives us a list of apples for cultivation, and among them is the "Sweet Romanite," an apple about as near worthless as any other apple grown.

Page 18, "Spontaneous Generation." Last spring my family made soap, and done other work in a big kettle out doors, and of course, in two or three days all life was burnt out of the ground under the kettle; yet, in the summer following, that spot was thickly overgrown with weeds, none of the sort growing near the place. This was pointed out to a neighbor, and he said the same thing had occurred where his wife had made soap, and that there were no weeds of the kind near the place. Recollect this was in the spring, when there were no weed seeds in a condition to be carried by the wind. It looks like spontaneous generation.

You are mistaken, and Mr. C. V. Riley is correct in regard to the Butcher Bird; it *is* this bird that impales the frogs and mice, etc., on any sharp point that he can find. Find one of their nests in an Osage hedge after their young are hatched, and you will find their surplus meat stuck on the hedge thorns all around about the nest. A frog falling in a shower would stick only on vertical thorns, while we find them on those that are horizontal. The butcher is a sagacious bird; when hauling corn fodder, in the latter part of winter, he will sit on a shock not far off and watch the operation of loading, and woe to the luckless mouse that undertakes to run to another shock; he is gobbled up in an instant. The bird is about the size of a robin, and somewhat the color of a mocking bird, that is, a rather lead color, with some white.

"Fungi in Timber," page 70. "Following up the idea thus obtained, that this sand found its way to the timber through the roots of the tree, etc. This is a hard thing to believe. Was it not some abnormal chemical action of the juices of the tree that formed the sand? Same article says, "A grub was found in the wood of a tree over a quarter of an inch in from the surface, and the wood all around showed no inlet, leaving the conclusion upon the mind that the grub in embryo must have been carried to the hatching place by the sap of the tree." Verily, who can believe this? Is it not more likely that the place was stung and then grown over?

Oregon Horticultural Notes, No. 4.

By A. R. Shipley, Oswego, Oregon.

Ed. Pomologist: Since the date of my last we have had a little frosty weather, and a good deal of rainy. Just now the weather is delightful, just right for speeding the plow, but not so good for speeding the pen, for one don't feel much like writing after following the plow all day. I don't mean to say that I have actually been plowing all day, but I have been at work equally hard. Planting Blackberries and Grapes is not exactly play. People are planting a great many trees this winter, and our nurserymen are kept busy filling orders. We have had a large accession to our rural population during the last year, and most of the new-comers wish to plant a few trees. Many of our old orchards have been neglected and permitted to die out. Some of them are being renewed, and all together, it makes quite a demand for trees, vines, etc. Most of us in Oregon prefer to plant fruit trees, vines, etc., during the fall and winter, as we have more time then, and we

think they do better as a general rule, though they can be planted any time till the first of May. The Apple crop of 1870 was below the average, as to quantity; in quality as good as usual, and sold for prices above the average of late years. Those sold before Christmas brought about 50 cts. per box. All, or nearly all our Apples are sold in boxes holding about a bushel. At the present writing, good Apples are worth in Portland 75 cts. to $1 per box. Formerly immense amounts of Apples were shipped to San Francisco.

I have known six thousand boxes to be shipped on one steamer. Of late years the trade has fallen off somewhat, and now only the best winter fruit is sent to that market. A considerable trade is done to Victoria, B. C., and the towns on Puget Sound. Large quantities of Apples are also shipped to Idaho and Eastern W. T. In the interior of the State large amounts are dried, transportation being too expensive to market them in the green state.

LIST OF APPLES FOR OREGON.

A list of twelve varieties of fall and winter Apples was agreed upon and recommended by the Oregon State Horticultural Society at their winter meeting, as the best for general cultivation in this State. The kinds agreed upon are Rambo, Fall Pippin, Gravenstein, Blue Pearmain, Northern Spy, Roxbury Russet, Winesap, Ortley, Swaar, Esopus Spitzenberg, Red Cheek Pippin, and Yellow Newtown Pippin. Of these, the Red Cheek and Newtown Pippin received the unanimous vote of the Society. The Roxbury Russet is one of the best apples we have, but the tree is one of the worst, never lasting but a few years. The Winesap is one of the best trees, but the fruit is rather too small for our market. The Apple tree cannot be considered healthy or long-lived in the Willamette valley. Why, no one has yet been able to tell; but the trees bear so young and so abundantly, and are so cheaply propagated, that apples will always be as cheap and plentiful as anywhere. I have yet to see the first worm in an apple in Oregon. In size, quality and keeping properties, our apples are unexcelled.

CLIMATE AND MARKETS.

Yearling apple trees sell at the nurseries at from seven to ten cents, but a great many fruit growers raise their own trees. I have never known the apple crop to fail entirely in this valley; on the level prairies, however, the crop is more likely to be destroyed by frost than on the rolling and hilly lands, the dry, timbered portions being surer and best adapted in every way for growing the apple. It is astonishing how young the apple tree bears in this country. They frequently bear at four years old. I have an orchard, root grafted four years ago this winter, and many of the trees are full of fruit buds. Probably no country presents a more inviting field to the fruit grower than Oregon. The ease with which the trees are propagated and grown, their early and constant bearing, the excellent quality of the fruit, all combine to make the business a pleasant one. Our markets will no doubt improve year by year, as the great Northern Pacific Rail Road approaches completion, and the country through which it passes becomes settled, and when lines of steamers open to us the markets of Asia. Then our climate is so mild and uniform. Even now, in mid-winter, a grand chorus of frogs greets the ear, and to-day I noticed pinks in our garden just coming into bloom. Our Fig trees in the open air have needed no protection. True, our winters are not always thus mild, but on an average, they are. I know a bearing Fig tree twelve years old which has never been injured by the winters, nor has it ever been protected in the least. Our lands are new, rich and cheap Facilities for transportation constantly improving. More anon.

Oswego, Oregon, Feb. 4, 1871.

The above interesting notes were received too late for March No., and inadvertently omitted in making up April No.

"Should Trees be Pruned?"

BY F. R. E., CLEVELAND, OHIO.

Ed Pomologist: I notice your Associate Editor is following Mr. Hovey's footsteps in the advising of no pruning at transplanting; and if he has not carefully read the discussions between Mr. Downing and Mr. Hovey some years since on this point, it may not hurt him to do so. In a practice of thirty years, I have experimented some myself, watched others more, and confess that to-day I *know* nothing. I have my impress of what is best, but he who as physician for animal or vegetable life, attempts to assume definite knowledge to suit all cases, I have learned to know has got yet one more lesson to learn.

Years since, I became satisfied that no line of practice could any more be laid down by line and rule in Horticulture than in Medicine; each individual life needing for its care a distinct and separate prescription; so that while we may give a general prescription of how to prune, or how to manure a variety of vine or tree, without seeing the patient we can do nothing reliably, and then not without having a previous knowledge of the same disease, and general character of the patient.

I have been with those who claimed knowledge and have learned that not one in fifty did know their subject; and in the matter of pomological nomenclature, I hesitate not to say that ninety-five per cent. of those who assume knowledge of a variety *at first sight*, are oftener in error than in correctness.

Tallman's Sweet on the Soulard.

By Charles Waters, Springville, Wis.

Ed. Pomologist: I have some Tallman trees budded on the Soulard Crab five years ago, three fourths of which now show fruit buds. They were budded on two year old stocks from the graft, and about one foot from the ground. These trees are as healthy and vigorous as any I have ever seen, while nine tenths of Tallman throughout this part of Wisconsin were either killed or seriously injured in the fall of 1869, by bark bursting at the ground. It was so also in the southern part of Minnesota. The great drawback on the Tallman in this region, is bark bursting at the collar, but which may be avoided by budding on the Soulard. I have tried other sorts on the Soulard which do not stand well root grafted, with equally satisfactory results. From my experience so far, I feel assured that trees made by budding on the Soulard will fruit earlier than on any other stock. I have tried the Soulard for top grafting but think budding much more preferable. I have never known a Soulard tree to bark burst at the collar, which is more than I can say for either the Transcendent or the Hislop, for I have known both badly injured, and others killed outright. I think the Soulard very valuable as a stock for working many of our half hardy sorts.

Growing of the Almond.

A record of the growth of an almond stock, reported by the editor of the Santa Barbara (California) Press, illustrates the adaptability of that favored region to the production of this valuable fruit. Early in 1869 he made several grafts, all of which are now promising. One of these, a terminal bud of the Languedoc variety, made February 22, was measured three months afterward, when the new stock above the old wood was found to be an inch and a half in circumference and three feet high, with six or eight branches averaging eighteen inches in length. On the 22d of March last, exactly two years and one month from the date of grafting, the tree measured nine and three-fourths inches in circumference at the ground, and was ten and a half feet high, with twenty flourishing branches within four feet of the ground, and over thirty in all.

Upon the subject of almond culture the Maryland Farmer says: "There is no apparent reason why the culture of the almond should not be pursued to a profitable extent in the warm and favorable climate of some of the Southern States. It so strongly resembles the peach tree that it is difficult to distinguish it by the leaves and wood only. The chief distinction between the two in our gardens lies in the fruit, which, in the almond, consists of little more than a stone covered with a thick, dry, woolly skin, while the peach has in addition a rich and luscious flesh.

The almond thrives best in a warm, dry soil, and its general cultivation in this country is precisely like that of the peach.

The Common Almond, the Hard Shell, Sweet Almond, and the Bitter Almond are hardy in the latitude of New York, and bear tolerable crops w ith out care. The Soft Shell or Ladies' Almond is the finest of all the varieties; it is the very variety-common in the shops of the confectioners. These can be obtained at any of the nurseries.'

Pear Blight--Another Theory.

A correspondent of the *Rural New-Yorker* says: "There may be something in my views relative to the necessity of pruning away all second or late autumn grown shoots on the pear or apple. Judging from many years of observation, I know there can be no harm in the practice, and I strongly believe there is benefit, if, indeed, it be not in itself safeguard, in the prevention of one class of blight.

My view is that the late autumn growth never, or rarely, fully ripens to perfection; and that the frosts of winter burst and destroy more or less of the natural tissue and channels of circulation, leaving the sap poisoned by slow decay; and as soon as vegetation comes in the spring, and the leaf is grown, so that a return of sap towards the root is formed, with that flows more or less poisonous sap, many times leaving traces on its way that soon increase with warmth and circulation until they exhibit fully to the common observer in blackened branch and browned foliage."

The Cultivation of the Quince.

Of all our fruit trees there is scarcely any so easily grown as the quince, and very few persons pay it the least regard, more than to place it in some, unfrequented spot where it becomes a subject of complete neglect, where choked with grass, and incumbered with weeds it makes a slow and mossy growth, and generally yields an annual crop of fruit, though the quality is often poor indeed, for like any other product of the soil, it requires care and cultivation to perfect its fruit, but never to my knowledge has this tree when properly cultivated, pruned and annually fertilized, as all fruit growers consider necessary in the cultivation of the pear, failed to produce abundant crops of very superior quality.

Public opinion needs to be changed in regard to the quince. It delights in a somewhat moist soil, as most fruit trees do, and for this reason is often planted where the ground is constautly wet, which is a decided mistake. Any deep, rich soil annually mulched with three or four inches of leaves, straw or coarse litter, will be found sufficiently moist for the quince, aud the best of care will bring about astonishing results with this much neglected fruit. — *Cor. Dutchess Farmer.*

The Vegetable and Flower Garden.

Horticultural Notes from the College Farm.

By E. C. Bessy, April 18, 1871.

Ed. Pomologist: This is emphatically our busy season, for with the inside work of getting classes under full headway, and the outside work of plowing sowing, planting, etc., we find that each day has more than enough to keep us busy. In the garden we have been planting potatoes, beets, carrots, lettuce, etc., for the earlier crops, and preparing the ground for the later sowings.

HOW WE GROW ASPARAGUS.

We have been engaged during a portion of the time in making an asparagus bed. As this is a much neglected plant in most farmers' gardens, allow me to tell how we have prepared the bed at less expense than is ordinarily supposed to be necessary. A year ago we manured the ground at the rate of about one hundred and twenty loads per acre with well rotted barn-yard manure. Plowed up and planted to peas—kept free from weeds, and in the fall plowed and subsoiled as deep as the subsoiler could be run. This spring covered the whole surface with fine manure, re-plowed and subsoiled again, gaining in depth several inches above the plowing of last fall. After leveling down, laid off the ground into beds six feet wide and planted three rows of asparagus on each, putting the outside rows one foot from the edge, with the third in the center, making the rows two feet apart. Set the plants from thirty to thirty-six inches apart, at a depth of from two-and-a-half to four inches. Used two year old plants, of the Giant Purple Top variety. Have been adding to our rhubarb bed also, intending by next year to have enough to supply the demands made by the boarding hall.

In the Small Fruit Department large and important additions are being made. The strawberry list has been enlarged, and the raspberries have had several thousand added to their numbers. Prof. Mathews, who has charge of this department, is also making a beginning for a nursery by planting quite a quantity of apple seed. He is also making additions to the orchard and vineyard.

On the farm some important experiments have been instituted for the purpose of testing a large number of grasses and grains. The grasses number above twenty-five, and include some not often seen in cultivation.

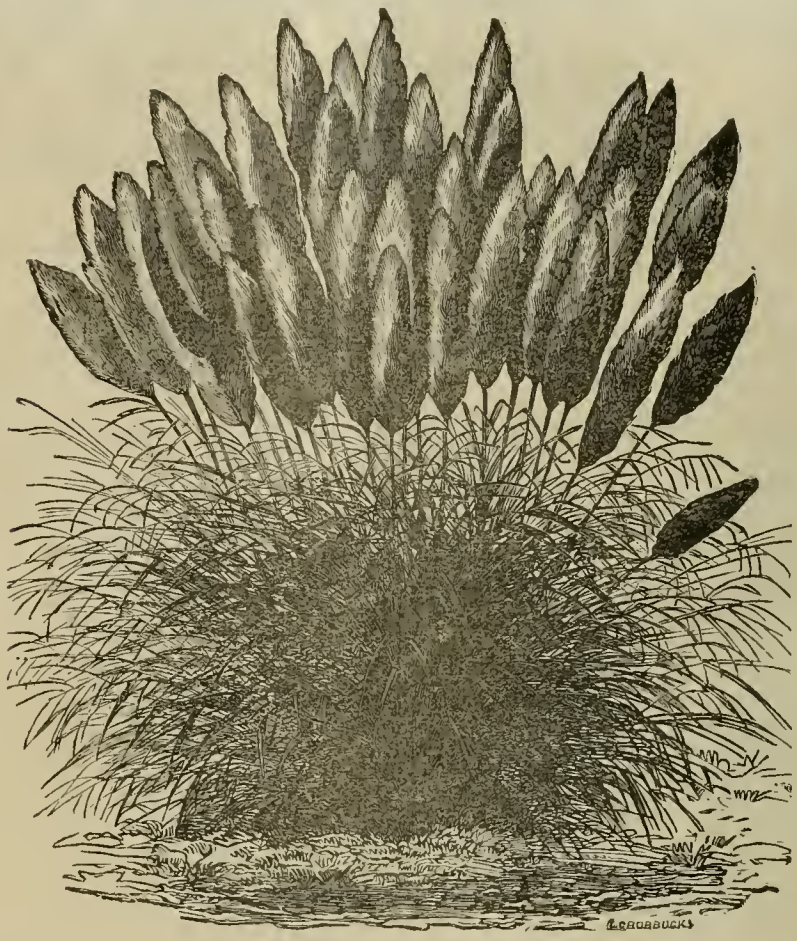
The Institution has this spring secured for its several departments quite a number of valuable seeds and plants from nurserymen and gardeners in the State. The plan of sending plants to the College is undoubtedly a good one, and one which will perhaps be productive of as much good as any other that could be suggested. Aside from the direct benefit which the individuals sending would derive from the publicity given to their plants, the State as a whole would realize a large profit from having its young men and women taught by actual experiment what varieties are best and most profitable.

I wish, Mr. Editor, you could impress upon your horticultural friends the fact that they have duties relating to the College to perform, as well as those of us who are in more immediate charge of its departments. If the College must *buy* every plant it tries, it will be a heavy tax upon its finances, and many things would have to be passed by for a year or two that we might be testing upon our ground as well as not, if the owners would but send us samples.

Celery.--New Mode of Cultivation.

The old-fashioned way of cultivating celery in trenches dug deep with the spade has been abandoned by the market gardeners and is now considered a useless expense. It is found to do much better grown on the surface, making a quicker and a greater growth, on which the quality so much depends, and the labor of digging the trenches is saved. We hope, therefore, it will be found more easy to grow it, and that it will come into more common use.

Celery does best on a deep, rich loam. If the land is not sufficiently rich, apply old and well rotted manure. It may be sown from the 20th of June to the 1st of August, or even later, according to the object in view. Planted about the middle of July, it would be large enough to "blanch" by the middle of October, and be ready to use about the 1st of November. It has always been regarded as an expensive and troublesome plant to raise, but it is a great luxury.—*Mass. Plowman.*



PAMPAS GRASS.—*Gynerium.*

Ornamental Grasses.

Among the ornamental grasses, there are two truly magnificent. *Gynerium* (Pampas Grass) is the most stately and graceful growing species of grass known. It is indigenous to South America, and on its native plain even rivals the bamboo in stature — attaining ten to fifteen feet in height. In this latitude it grows to a height of six to eight feet. It is a half-hardy perennial here, and should be protected in winter by removal to a cellar or cold frame. It may be lifted in the fall and set into a cellar with very little trouble, and returned to the open ground in spring. Its transfer fall and spring will well repay the trouble, for it is a most beautiful object in the ornamentation of the front yard, with its long, graceful, silvery plumes bending to the slightest breeze.

Imperiata is another magnificent hardy grass, quite recently introduced from Amoor, with gracefully curved foliage, forming a fine bush about three feet high, throwing out numerous flower-spikes about five feet in height, bearing glittering silvery plumes of flowers, extremely pretty. The leaves are lively green, with a broad, silvery line down the middle; and the habit and bearing of the plant are quite as handsome.

For the accompanying illustration of the Pampas Grass, we are indebted to Messrs. Washburn & Co., Seedsmen and Florists, Boston, from whom packages of seed of either of these grasses may be obtained for twenty-five cents each.

Watering Plants with Hot Water. — It has lately been shown by careful experiment, that sickly potted plants, even some that have almost died out, can be greatly benefitted, and sometimes, indeed, entirely restored to vigor, by applying warm water to them instead of cold. In certain cases, oleanders that have never bloomed, or did so only imperfectly, after being treated with lukewarm water, increasing the temperature gradually from 150 degrees up to 170 degrees Fahrenheit, produced the most magnificent luxuriance of bloom.

Market-Gardening in the Country.

The census often shows the drift of farm-life more accurately than any partial observation, however minute. It is quite clear, from the returns already examined, that there is a decrease in the amount of live stock in the New England and Middle States during the past decade, and likewise a decrease in the yield of staple grains, while there will be shown a large increase in the crops of vegetables and in garden products. This shows pretty conclusively that grain farming and live stock raising do not pay so well as some other branches of farming. The city and village population has increased, and the farmers in the immediate vicinity of these large towns are turning their attention more and more to supplying their daily wants. They can sell potatoes and turnips every day in the year, if they have them, and garden products all through the summer and fall. There is, however, a brisk demand for poultry, eggs, milk, calves, lambs, and swine, and they very properly raise what the market demands.—*Monthly Ag. Report.*

Mushrooms.—Great numbers of Mushrooms are finding their way into the markets in this city. One firm in the Pacific Market reports an average receipt of forty boxes per day, aggregating fully fifteen hundred pounds. The increasing demand for this delicacy has induced a gentleman of Alameda to enter largely upon their cultivation.—The most of those now gathered are collected from the fields, by Chinamen. The cultivated article is much preferable to that which grows spontaneously. Great care should be employed by those who are not intimately acquainted with them, to avoid mistaking them for poisonous toad-stools. As a warning in this direction, we may mention the fact that a little son of Mr. Basset, of Oakland, lately went to gather some mushrooms, and mistaking toad-stools for the delicate esculents he was seeking, eating them, was poisoned and died from the effects.—*Pacific (Cal.) Rural Press.*

Lennings' White Strawberry.

A correspondent of the *Horticulturist* says:—If there be a Seckel or a Delaware among strawberries, this is it. I have seen it often compared with a dozen of the leading varieties, but never heard but one opinion, viz: 'This, for exquisite flavor, is unsurpassed.' It is a moderate sized berry, not remarkably even in growth, nor a very productive bearer. It is, however, not a poor bearer, nor by any means small in size. Its color is a delicate blushed white, a sort of fleshy pink on the sunny side. The plant needs careful culture, but is a rampant grower, spreading as rapidly as any of the red varieties.

The Turnip Fly.

Those who do much in growing the turnip, experience more or less inconvenience from the fly upon the young plants. An English farmer says. "For the last fifteen years, on sowing turnips, I provide, ready slaked, one ton of lime per acre. As soon as the plants appear the lime is spread from a cart over the young plants in the rows. In hot seasons the plants have had rough usage from their tormentors, but sufficient plants escape. I never missed a crop, nor have I had to sow a second time. The lime must be put on dry, and on a warm or hot and dry day; for if any dew or moisture be upon the plants they will be destroyed. The lime must be ready to put on the moment the mischief begins, for in the twenty-four hours of a hot season the fly can ruin any crop; it is no use then going for the lime."

The Tuberose.—A successful florist gives the *Country Gentleman* the following mode which he adopts for this bulbous plant. He says; "Take the flowering bulbs and break off all the offsets—do not leave one; put them in a light friable loam, with a liberal mixture of leaf-mold and well rotted cow manure. In case of drought, give them plenty of water, and the work is done—and you will soon be amply rewarded by delicious perfumes. There is nothing in my garden does better with this management, or gives me less trouble."

Horse Radish for Animals. An exchange says horse radish is an excellent condiment to mix with the food of cows, to give them an appetite, and make them sleek and thrifty. It should be fed freely to all animals that are not well, and it will be of great service to working oxen troubled with heat. If given to cows in doses of a pint a day, mixed with potatoes or bran, it will prevent or relieve cows of the disease called cake in the bag. Few animals refuse to eat it, and some will eat greedily, as much as half a peck at a time. So says a floating paragraph.

Currants.—In the last report on the Fruit Crop, the Fruit Committee of the Massachusetts Horticultural Society, say that of currants, "Le Versaillaise has uniformly taken the first prize, and is first on the the list. Red and White Dutch are still standard kinds."

Bedding Plants. In making up a list of bedding plants the following can scarcely be bettered. Scarlet or Horseshoe Geranium, Verbenas, Scarlet Salvias, Petunias, Heliotropes, Coleus, Cupheas or Cigar Plants, Tropeolum or Nasturtiums, Fuchsias for shady situations, Vincas of sorts or Perrywinkle, Mignonette, Sweet Alissum, Candituft Cannas, and Lantanas.

THE BANANA:—Buis's American Flower Directory says: "We especially recommend the increased cultivation of the Dwarf species. Cavendishii and Dacca,—which can be very successfully grown and *fruited* in tubs, as they grow only from four to six feet high, and can so easily be removed to the cellar, stable or other out buildings for protection during winter. With this treatment, we have seen them bearing excellent fruit as far north as Memphis, and even Cincinnati."

RADISHES.—The radish ought to be grown in every garden, and found on every farmer's table. It is one of those few things that are indispensable in every well regulated family, for it is healthful, as well as palateable.

The radish likes a deep, light, rich soil. Its perfection depends upon its rapid growth. If it grows slowly it is apt to be tough and stringy. Give it a warm and rich soil, therefore, and force it ahead by stimulating manures.

THE CAULIFLOWER.— To attain the best success with this delicious vegetable it must have a cool, moist, rich soil. If grown on a dry, sandy loam, to produce good heads the soil must not only be made rich, but the plant mulched, to keep the ground cool, and to retain all the moisture possible.

MILDEW ON ROSES.—A correspondent of the *Cottage Gardener* gives the following cure for mildew on roses: Rub down in a gallon of soft water one pound of soft soap; with the solution syringe the upper and under surface of the foliage, and the mildew will disappear as if by magic.

REPELLING INSECTS.—For repelling insects, the *Gardener's Chronicle* recommends a dry mixture of four parts of road dust, two parts of powdered tobacco, of any kind, and one of sulphur — to be dusted by hand over the plants, after sprinkling them with water.

NO FRAGRANCE, FRUIT OR SONG.—The rose of Florida, the most beautiful of flowers, emits no fragrance; the bird of Paradise, the most beautiful of birds, gives no song; the cypress of Greece, the finest of trees, yields no fruit.

GROWTH OF THE PEPPER TREE.—In Los Angeles there is a pepper tree grown from a seed planted three years ago, the trunk of which measures over eighteen inches in diameter.

LARGE ONION YIELD.—Last season Mr. W. P. Watson, of Multonomah county, Oregon, raised a patch of onions on Beaver Dam land, which produced at the rate of 1.100 bushels per acre.

PLANTING FORESTS IN MAINE.—The Maine people are talking about sowing the seeds of forest trees for lumber, and especially of the white pine.

Entomology.

DR. S. H. KRIDELBAUGH, EDITOR, CLARINDA, IOWA.

☞SEND IN THE INSECTS.—Dr. R. is chairman of the Committee on Entomology for the State Horticultural Society, and would take it as a favor to be furnished with specimens of insects from the various localities of the State, by mail during this year. Those sending will please state all they know concerning the habits of the insects sent; what they are found feeding on, etc.

The Canker Worm.

Anesopteryx Vernata. This insect, which of all others, is perhaps the most destructive among apple trees, exists in quite a number of localities in the West. Hence its natural history should be familliar to every orchardist.

The *A. Vernata* generally makes its appearance in early spring, about the middle of March, some times earlier and sometimes later, depending on the early or late warm temperature of the season. But while it has a general time for appearing in its perfected insect form, there are with it variations from this general rule—as a few come out late in the fall and of warm days during the winter. Open, mild winters being very favorable to the variations from the general rule.

The annexed cut, (fig. 1) here given represents the female moth in every particular natural.

FIG. 1.

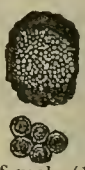
FIG. 2.

She is wingless, and cannot fly, hence her only mode of locomotion is to creep—which she instinctively does to the nearest tree, on which she in due time deposits her eggs.

The male moth is a four winged, ash colored insect, with a body much smaller than the female. It is very active, and may be seen fluttering around the whereabouts of the female, and from cluster to cluster of her eggs. Ilis natural size and figure is here given in the annexed cut, (fig. 2.)

The female deposits her eggs in clusters of from sixty to a hundred in a place, in rows, on their ends, and firmly glues them together, and to the bark, with a grayish varnish, which effectually keeps them from being injured by moisture.

"They appear as shown in this cut, a little cluster of the natural size on the bark, and a few magnified. These clusters are usually found in the forks of small branches, or close to the young twigs."



In a short time both the male (2) and female (1)

moths die. The eggs hatch from the first to the middle of may, soon after the young worms start and grow, on which the young larvæ (worms) may be found feeding. The canker worm is a span or, measuring worm, and when full grown resembles the figure given in the annexed cut, (fig. 3.) When full grown which takes place in about four weeks from hatching, the larvæ either creep down the bodys of the trees, or swing themselves to the ground by their threads, and go under the ground to pass into the pupa state, which occurs in a day or two after they have buried themselves, and formed, each of them, a cell resembling the figure here given in the annexed cut, (fig. 4.)

FIG. 4. FIG. 3.

The food most preferred by the canker worm is the foliage of the apple tree, it is not however confined to the apple alone, but feeds on elm, and has been found eating the leaves of the plumb, cherry and basswood, occasionally.

As for a remedy, we need not speak in this connection, as two very complete articles appear in the current volume, upon the subject—one in the March No., and the other in the present one.

Value of Honey-bees in Fruit Culture.

Honey and wax have ever been two most useful articles in domestic economy, and from the earliest times the honey-bee has been the companion of man. What an addition to a farmer's house is a bee hive nestling among the apple trees with its hundreds of busy inhabitants, some settling about the door, or flying lightly above the roof, others darting off in new supplies of food, and still others returning on laboring wings laden down with their "baskets" filled with crude pollen. What a scene of industry and system is bee life! This is an every day picture. But honey and wax are not indispensable. The hunting of the sperm whale and the discovery of petroleum have done away with the need of wax, and the sugar cane and beets give sweets in new and convenient forms. What use, then, is the bee? your readers will ask. The answer will recur to but a few. The grand use in nature of the bee is the securing to the farmer or fruit raiser a good crop and the permanence of the best varieties of fruit.

Gardeners have always known that bees fertilize squash, melon and cucumber flowers by conveying the pollen from one plant to another, thus insuring not only the complete fertilization of the seed by the male pollen and thus improving the fruit, but actually causing the production of more squashes, melons and cucumbers, by causing certain flowers to set, that would otherwise have dropped to the ground sterile and useless.

This has been proved by fertilizing the flowers by hand; a very large, indeed an unnaturally abundant crop being thus obtained. It has been noticed by a few, though the many have not appreciated the fact, that fruit trees are more productive when a swarm of bees is placed among them, for when the bees have been removed by disease or other means the fruit crop has diminished.

On this subject I wrote as follows to a correspondent in the "American Naturalist," a monthly illustrated magazine of natural history, published by the Peabody Academy of Science, at Salem, Mass.

"In answer to the question of J. J. Gould, (Wenham, Mass.) whether bees are any way injurious to fruit, or lessen the quantity or quality, I would reply that all the evidence given by botanists and zoologists, who have specially studied the subject, shows that bees improve the quality and tend to increase the quantity of the fruit. They aid in the fertilization of the flowers, thus preventing the occurrence of sterile flowers, and by more thoroughly fertilizing flowers already perfect, render the production of sound and well developed fruit more sure.

Many botanists think if it were not for bees and other insects (such as certain two winged flies, moths, wasps, etc.,) many plants would not fruit at all. This whole subject of the great office of bees and other insects perform in the fertilization of plants has been fully discussed in the May, July and October (1867) numbers of the "American Naturalist," and by Prof. Asa Gray, in the "American Agriculturist," beginning in May, 1866. "It is alleged that bees do injury in some way by extricating honey from flowers. What is the use in nature of honey? The best observers will tell you that it is secreted by the plant for the very purpose of attracting bees to the flower, otherwise it is of no use to the flower or fruit."

This was written before Samuel Wagner printed an article on the same subject in his well known and useful "American Bee Journal." His testimony so well confirms my statements made above, and is so important to fruit raisers, that I reproduce it in part:—

"In 1774 Count Anthony, of Torrings, Seefield, in Bavaria, President of the Academy of Science, at Munich, striving to re-introduce bee-culture on his patrimonial estate, found in this generally prevalent prejudice (i. e., that the bees injure the fruit by their visits to the flowers) the chief obstacle to success. To overcome this, he labored assiduously to show that bees, far from being injurious, were directly beneficial in the fructification of blossoms, —causing the fruit *to set*, by conveying the fertilizing pollen from tree to tree and from flower to flower. He proved, moreover, by official family records, that a century earlier, when bees were kept by

every tenant on the estate, fruit was abundant; whereas then, when only 7 kept bees, and none of those had more than 3 colonies, fruit was scarcer than even among the tenantry."

At the Apiarian General Convention, held at Stuttgard, in Wirtemburg, in September, 1858, the subject of honey-yielding crops, being under discussion, the celebrated pomologist, Prof. Lucas, one of the directors of the Hohenhein Institute, alluding to the prejudice, went on to say: —

"Of more importance, however, is the improved management of our fruit trees. Here the interests of the horticlturist and the bee keeper combine and run parallel. A judicious pruning of our fruit trees will cause them to blossom more freely, and yield honey more plentifully. I would urge attention to this on those particularly who are both fruit growers and bee keepers. A careful and observant bee keeper at Potsdam writes to me that his trees yield decidedly larger crops since he has established an apiary in his orchard, and the annual crop is now more certain and regular than before, though his trees had always received due attention.

Some years ago, a wealthy lady in Germany established a green house at considerable cost, and stocked it with a great many kinds of choice native and exotic fruit trees, expecting in due time to have remunerating crops. Time passed and annually there was a superabundance of blossoms, with only very little fruit. Various plans were devised and adopted to bring the trees to bearing, but without success, till it was suggested that the blossoms needed fertilization, and that by means of bees the needed work could be effected. A hive of busy honey gatherers was introducen next season; the remedy was effectual—there was no longer any difficulty in producing crops there. The bees distributed the pollen, and the *setting* of the fruit followed naturally."

From these convincing facts we learn the value of the honey-bee to agriculture. Blot them out and we must go almost entirely without fruit and vegetables. Besides being a source of profit for their wax, the bee actually brings to our doors loads of fruits and vegetables, and other productions of the farm.—*A. S. Packard, of American Naturalist.*

The Yellows.—The *Ad Interim* Committee of the Illinois Horticultural Society caution the public against purchasing peach trees, or planting pits of trees grown in districts where the "yellows" exist.

The Cork Oak. — The Visalia, Cal., *Delta* says there is a region along the margin of the foothills well adapted to the orange and cork oak. A few specimens of cork oak have been planted, are healthy, and have made a growth quite equal to that of our native live oak.

The Western Pomologist.

TO THE PUBLIC.

Whereas, the *Western Pomologist*, published at Des Moines, Iowa, and the *Western Gardener*, published at Leavenworth, Kansas, have been consolidated, and will hereafter appear under the name of *Pomologist and Gardener*, the patrons of the *Gardener* will be furnished for the balance of the year (unless their subscriptions sooner expire) with the consolidated paper under the above name.

My name will, for the time to come, appear as corresponding editor. It is hoped that every lover of horticulture throughout the West, will consider him or herself as a special committee for extend the circulation of a paper so much needed. It should be on the table of every one who wishes to grow fruits, flowers, or market vegetables.

Wm. M. Howsley.

Leavenworth, Kansas, April 27, 1871.

The Pomologist and Gardener.

From the above announcement it will be understood by the patrons of the *Western Gardener*, heretofore published at Leavenworth, Kan., under the editorial charge of Dr. Wm. M. Howsley, that the *Gardener* has joined hands with the *Western Pomologist*. On the commencement (July No.) of the last half of the current vol. of the consolidated paper, it will appear under the name of *Western Pomologist and Gardener*.

The union of the two papers has been made with entire satisfaction to all parties interested, and we trust to the mutual benefit of both publishers and patrons. Aside from other advantages resulting from the marriage, new strength is gained to our editorial corps in adding thereto the able pen of Dr. Howsley, who stands prominent among the solid horticulturists of the West. With the *Gardener* also comes the good will and wishes of its correspondents, and from whom we may expect additional strength to our already wide and able corps of outside writers.

Mark Miller.

Notes from Northern Iowa.

Ed Pomologist: You are wondering what has become of me, as it is a long time since I have written you. But you will excuse me when I tell you I have been sick. Six long weeks shut in doors, through this most beautiful season of the year, and how grandly strange all nature looks, clothed in her beautiful green, with the blossoming plants, the blooming fruit tree and shrub, as it now bursts upon me, since my returning strength allows me to get out and see this beauty. (When last I looked before all was gray and cold.) Being a lover of, and devotee to pomology, I suppose these beauties of nature are more pleasing to me than to many others.

Well, in my waiting returning health, I am reading over the back numbers of the Pomologist. I am much pleased with it. It is what the fruit grower here in Iowa needs. Its editor is an old settler of Iowa. Most of its correspondents are Iowa or Western men, consequently we must from each other get information of much value to all.

The soil and climate of Iowa differs so much from the whole country cast of us, that to succeed in fruit raising we are compelled to adopt different modes of culture, pruning, and all that sort of thing; are compelled to select but few kinds from the many that are grown east; but instead, kinds that nature has adapted to this high latitude, rich soil and dry atmosphere. Consequently it is the experience of Iowa, of Western Horticulturists that we want here, and through the Pomologist we ought and will receive it. Every man owning and cultivating a piece of land should take it.

The prospects for fruit up here in the North part of the State I have never seen so flattering as now. The past season was so dry that fruit trees made but little growth which caused fruit buds to form, and trees are blossoming as young as in any country I was ever in, not only so with the apple, but all our fruits. This ought to show our fruit raisers that it is a slow growth (provided the tree is not starved) that brings us early fruit.

Our part of the State is quite new, not very many orchards that are old enough to fruit, but those that are, now look so promising—everything from the currant bush up, that if we are favored as we usually are up here, with no late frost, our people will be encouraged in Iowa fruit growing. I think there will not be a single croaker left, for we will have lots of fruit, and we will bring some of it to the State Fair, where you can *see* it. I think we are not as liable to have late frosts to injure our fruit as farther South; if so, are we up here to succeed, now we have found the "irod clads," better than you at Des Moines?

J. T. Mott.

Postville, Iowa.

Those Impaled Frogs.—The Butcher Bird.

Ed. Pomologist.—My observations go to corroborate the theory that the agent in spitting those frogs upon thorns as described in your January No., is a bird. We have been here but two seasons, but the bird in question being quite common, I chanced to see one last spring flying with a snake perhaps a foot long. He pitched into the top of a fallen wild plum tree, and, hitching the reptile near the head upon a spur, tore off and swallowed the flesh in a short time. Whenever the little butcher by his vigorous jerks tore out the hole made by the thorn, he hitched the carcass on again in a twinkling, in the most skillful manner. The backbone only was left. Whether the little epicure had had his game spitted somewhere for a few days to produce tenderness and *sweetness*, after the manner of some other bipeds, I am unable to say with certainty, but the facility with which the repast was discussed, appears to favor such a conclusion.

We frequently see frogs and snakes, and in a few instances "big bugs" have been noticed impaled upon trees. The bird is about the size of the robin, of a dull blue color, very pugnacious—and rather a nuisance. Last season a pair built a nest near the house, allowing no other bird within hailing distance. Finally, desirous of cultivating the friendship and familiarity of the feathered scavengers, beauties and songsters *in general*, we felt compelled to shoot the little *savages*, to effect that end.

We were soon assisted in ridding our trees of enemies worse than frogs or snakes;—cheered by the presence of delicate forms in beautiful plumage—and gladdened by the happy and varied notes of many a practiced warbler. Stephen Young.

Mechanicsville, Iowa.

Premature Decay of Orchards. — At a meeting of the Yamhill county, (Oregon) Farmers' Club, Mr. Wm. McDonald, who is reported to have one of the most thrifty and productive orchards in the county, said that he gained his experience in Kentucky. There, in an early day, as in Oregon, the people lost their orchards by premature decay. They had worked the ground carefully, kept it free from vegetation and pruned with unsparing hand, but neglected to manure the ground. Since then a different plan has been adopted, which Mr. McDonald has found to work equally well in this country. He never plows to cut off roots after the trees attain much size. He avoids cutting any large lower limbs, as that invariably results in unsound wood in the trunk of the trees, and ultimately in decay. He has a good crop of grass growing in the orchard, and as often as every second year treats each tree to a bountiful top dressing of barnyard manure or rotted straw. Of the success of this treatment the orchard itself is sufficient evidence.

Ed. Pomologist: Allow me to give a contradiction to my own assertion, in a late number of your journal. I there stated that the peaches were all frozen in the bud. This is not the case with seedling trees, there being quite enough of bloom for a crop. But the choice or budded varieties are all gone. On high grounds there are a few choice ones saved about Herman, fourteen miles from here.

The apple trees are loaded with blossom buds, and will be out in a week, if the weather keeps as it is now.

Who can say to a certainty that Matthew's "No. 13" is not Rogers No. 1 grape? From all that I can learn it is, as I have seen them all, I believe, and cannot call to mind any one but No. 1 which corresponds to that description.

That asparagus will vary from the parent when seed is sown, is very apparent, in my case, as the second year I could not tell the Purple Giant from Conovers Collossol, the latter for which I paid $1 for a package of seed. I can cut a good crop the third year from seed sown at once where the bed is to be.

S. Miller.

Bluffton, Mo., April, 1, 1871.

Wine Making in Nevada.—The *Territorial Enterprise* of the 12th says: "We have received samples of wine of various kinds, manufactured in this city by Mr, Andrew Milatovich. In making these wines the grapes were not pressed—being merely broken up by the pressure with the hands, and no addition of any kind was made to the pure juice of the grape. Good judges say that the wines thus manufactured in this city are much superior to the wines made from the same grapes in California. Our climate is said to be more favorable for wine making than that of California. Tons of grapes are now in use in this city every fall in the manufacture of wine, principally by Germans and Selavonians. In a number of saloons all the wine sold is made in this city from grapes brought from California.

Apples for Oregon.—The Oregon State Horticultural Society have made a recommendation with regard to the best twelve varieties of apples to be grown for the market, to which some of the fruit growers of the State take exceptions. "Mr. M. P. Owen, in speaking of his preferences, says that he can sell, either for the California or home market, one thousand bushels of the Red Astrachan and Early Harvest, (neither of which are included in the Society's list,) for seventy-five cents to a dollar a bushel, to ten bushels of Red June and Golden Sweet (both of which are included in the Society's list) at thirty-seven and a-half cents per bushel."

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THE POMOLOGIST

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MARK MILLER,
Editor and Publisher, - - *Des Moines, Iowa.*

DR. J. STAYMAN,
Associate Editor, - - *Leavenworth, Kansas.*

DR. WM. M. HOUSLY,
Corresponding Editor, - - *Leavenworth, Kansas.*

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Mulch Your Trees.

Thousands of trees are annually lost during the heat of summer, that might be saved with the outlay of a very little labor only, by way of mulching. We say *labor only*, for the requisite material with which to *do* the work may usually be found in great abundance upon every farm. The roots of newly transplanted trees stand in special need of an extra amount of moisture to re-establish a foothold in the soil, and to sustain the life of the tree during the first season after its removal from the nursery. Evaporation of moisture from the naked soil, so important to the promotion of new growth, is such, that unless transplanting is followed by frequent and copious falls of rain, or by mulching, the tree has a hard struggle to sustain life. In transplanting tree, shrub, plant or vine, the soil should be well packed around the roots, and well saturated with water, and the surface of the ground systematically mulched. Mulch is a non-conducter of moisture, and maintains in the soil underneath, that moist, friable condition found in the forest, so favorable to the growth of vegetation. The best material for the purpose is very coarse barnyard manure, straw, hay, or material from an old straw heap partially decayed. Tens of thousands of trees were lost last season throughout the west, from inattention in the direction of mulching. Evergreens need mulching no less than fruit or other deciduous trees—in fact more, for their fine fibrous roots will ramble near the surface, however deep the tree may be set. Never stir the soil about an evergreen, but use mulch unsparingly to the full extent of the roots.

The Apple.--Its Propagation.--No. 5.—Concluded.

BY THE ASSOCIATE EDITOR.

Harvesting the Apple.—Packing for Shipping and Storing.—Disposition of Surplus or Refuse Apples, &c.

Pick your apples with care before they freeze, which can be easily done from the ground by hand on low headed trees, except a few of the higher center branches, which may be gathered by a hand-picker, of which there are several patterns. Assort your apples with care before sending them to market or to pack away. They will bring more money by so doing, and you will establish a reputation which will always sell your fruit at the highest markert price which is the best trade mark you can have, simply *your name*. If you pack in barrels for shipping or storing, let them be uniform and sound throughout, that when a barrel is opened it will show a correct sample. In packing, place the stem down on the end of the barrel which is to be opened, have a good sample on the first tier to show well, then place one above the other as close as they will pack, until full, then press down tight with a hand press, and head up and nail tight, so

they will not shake about in the barrel. Put but one variety in a barrel, and mark it on the head to be opened.

If put into a cellar to keep it should be cold and dry, and of an even temperature, with no light and but little air. When put up for family use o r even for market they may be carefully put into ten bushel boxes, well assorted, in a tight, dark cellar, with a temperature of 35 to 50, and be easily kept fresh and sound without wilting, until new apples come again, if of good keeping varieties. The whole secret of keeping apples is a low, even, dry temperture, with darkness and but little air.

The surplus sound apples may be made into cider. To do so they should be ground up into fine pulp of fifty or a hundred bushels at one time, and then put under a press with a gentle pressure at first, increasing it by degrees, until thoroughly pressed. It should be strained into barrels and put into a cold cellar. When done working rack off and bung up tight to exclude the air. The lower and more uniform the temperature the better it will keep. Cider may be kept perfectly sweet and fresh for years by putting it into wine or champagne bottles immediately from the press when clear, and then brought to a heat of 180 degrees to kill the fungus or germ of fermentation, and also to exclude the air, which may be done by heating the cider in a porcelain kettle, and then pouring it into the heated bottles boiling hot, or by filling the bottles first and placing them into a boiler up to their necks in cold water, and then heating it to boiling, at which point it should remain a few moments. Then carefully cork and seal to exclude the air precisely as putting up fresh fruit in glass cans, and it will keep just as long as if put into a good cellar.

The refuse apples can be fed to hogs, or better made into vinegar. To do so grind them up and let them stand in the pomace some time before pressing to hasten the acetous fermentation. The higher the temperature is kept, and the more air it receives the sooner it will become vinegar. The addition of a few gallons of sharp vinegar to a barrel will very much hasten the formation of vinegar.

In conclusion we would say, keep a sharp look out for the numerous destructive insects which appear to be on the increase, and for the object of becoming better acquainted with their habits and the means of checking their further progress and destroying them, we would recommend the careful perusal of the ENTOMOLOGICAL DEPARTMENT of the *Pomologist*, which is particularly devoted to that subject.

With these tedious remarks, we submit this essay to the public, which we hope will benefit the new beginner, if not the experienced in the cultivation of the apple.

Oregon Horticultural Notes.--No. 5.

BY A. R. SHIPLEY, OSWEGO, OREGON.

ED. POMOLOGIST: Rain, rain, rain. Rain in the morning, rain at noon, rain at night, rain all night, rain all day. Truly the mists are upon us, and we are having a genuine, old fashioned rainy March; one of the real old sort, such as we have not had for many years. I sometimes think that it is the long continued, wet weather keeping the ground saturated with water that causes the decay of the apple trees. The trees will be growing rapidly and seem to be perfectly healthy, when all at once you will begin to see black spots on the limbs, and sometimes on the trunks. Examine them and you will find the bark dead under the spots. People call them the plague spot. The tree is doomed, though it may live and bear fine fruit for many years. Some of the branches may die outright and others live for years. I have known orchards whose tops were nearly all dead, renewed and rendered fruitful again by having the tops all cut off close to the trunks. In the city of Portland, where there is a system of sewers and the drainage is good, the apple trees appear to be perfectly healthy, which is evidence that it is the excessive moisture that causes their decay, in other places not thus drained. But while we cannot boast of the health of our apple trees, we can and do point with pride and pleasure to our

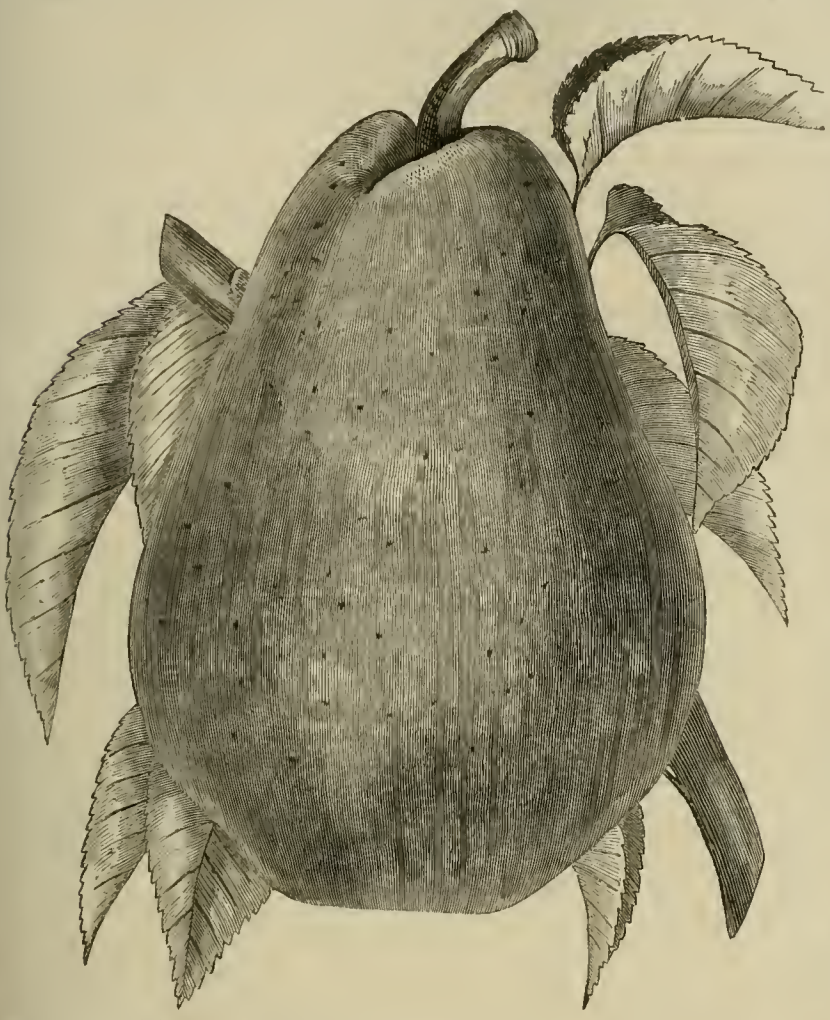
MAGNIFICENT PEAR TREES,

and their peerless fruit. The pear is perfectly at home in Oregon. No blight, no crack, no disease of any kind ever affects it. The tree begins to bear when not much larger than your thumb, and continues to yield its luscious fruit year after year. We have probably over one hundred and fifty kinds in Oregon, including all the leading varieties, and all do well. They sell for the same price as apples, or perhaps a shade higher. Our people don't use them as much as they do apples, and not near as much as they ought, considering their cheapness and the perfection with which they grow here. Just think of Bartletts, yellow as gold and weighing nearly a pound each, selling for fifty to seventy-five cents per bushel, most of them specimens that would bring that much each, in New York. The largest pear on record grew within two miles of where I am writing. It was raised by Mr. G. W. Walling. It was of the variety called Pound Pear. The tree is grafted on a thorn, and is still flourishing. This pear weighed four pounds and four ounces, and in circumference lengthwise, 21 inches, in width, 18 inches. People at a distance from market not being able to dispose of their pears in the green state are beginning to dry them, for which purpose they are not surpassed by any fruit that grows. Sprinkled with a little white sugar and carefully dried they are superior to the fig. Dried pears are worth in our markets about 12½ cents per pound. When the North Pacific Railroad is completed we will send you some.

Bartlett Pear.

By the Associate Editor.

Fruit large: weight from 10 to 14 ounces; form ovate pyriform; skin thin, smooth, clear, light yellow, with a soft blush next the sun; some russet about the stem; dots small, scattered, russet; stem medium length, thick, cavity shallow, narrow; eye small, partially open; basin shallow, wide, furrowed; core small; carpels long; seeds broad, obtuse, pyriform, dark brown; flesh yellowish white, fine grained, buttery, melting, juicy, vinous, musky, sweet, and highly perfumed; quality best; season August and September.



Tree vigorous, upright, healthy; very early and abundant bearer; bark dark yellow, with numerous grey specks; leaves narrow, medium, deep green.

This pear generally succeeds better than any other variety, particularly on its own stock, and bears as early as on the Quince. It is so handsome and excellent that it will always command the highest price in the market—good specimens bringing from two to three dollars per dozen.

Downing says: "This pear is justly one of the most popular of all the summer varieties. Its size beauty and excellence, entitle it to this estimation apart from the fact that it bears very early, regularly and abundantly."

Eliott says: "Valuable as a desert sort and profitable to plant as an orchard sort for market."

Pear Culture—Pruning.

The Pacific *Rural Press* says: "The pear which seems fast dying out in many localities at the East, is the healthiest of all fruits in California, the longest lived, and the most productive, and the fruit as compared with the pears of other States, is superior in qua ity. Some of the older trees in California yield more than half a ton of fruit each, on an average every year. The most profitable pears are the Glout Morceau, Bartlett, Easter Beurre, Vicar of Wakefield, and the Winter Nellis. The Bartlett is the most profitable for mountain cultivation, because it ripens after the valley pears are gone in the

San Francisco market, and then bring from five to ten cents per pound.

An experienced pear culturist says that he has examined thousands of dwarf pear trees in the grounds of others, and has never seen good, healthy, vigorous trees where annual pruning has been omitted. Near his orchard which contains 2,000 healthy, thrifty, dwarf pear trees, a neighbor planted trees at the same time, obtained from the same source and of the same age as his. This neighbor pruned a little the first and second years, but last year his trees being full of blossom buds, he allowed them to bear and left them unpruned. The season was a very dry one, the fruit did not fully mature, and now from one-half to two-thirds of the trees are dead."

Horticultural Notes from West Virginia.

By I. G. Mask, Moorefield, West Virginia.

Ed. Pomologist: The back Nos. of the Pomologist came duly to hand, and I could not be otherwise than *pleased* with the handsome style in which it is gotten up—showing as it does how far the vigor and energy of our Western friends have outstripped us of the old fogy order, in the Ancient Dominion—in all things pertaining to the culture and improvement of fruits. The contents of these papers, so far as I have read them, are fully up to the standard of any of the oldest and most popular periodicals of the day, and with so many able contributors it need not be surprising that your journal, though of comparatively recent origin, should exert a powerful influence in developing the capacity of your country for the growth of fruits, as well as all other products. There you are almost thousands of miles from the sea board and the great city markets, and here we are but a few hundred miles from tide water, yet with a valley which might be made to present a paradise to the eye of the the traveler, and a Pomonial Eden to the lovers of fruit, are unable to grow a grape, or apple, or any other fruit except what is sufficient for our home use, whilst you away out in Iowa can realize large revenues and profits. You have the advantage of quick and smooth transportation, which enables you to reach a market for your most delicate products, whilst we have but a distance of forty or fifty miles of wagon road to encounter, ere we reach the rail—but this is sufficient to spoil the fruit—and adds so much to the cost that it is a complete barrier to its culture for profit. We are situated between two mountains, in a small but one of the most productive valleys in the country. The Baltimore and Ohio Rail Road passes on the east side of one of these barriers, and the Great Valley Rail Road on the other, and the nearest point of access to either is forty-eight miles, and that over mountains. Should the Southern Pacific Rail Road succeed, we have a hope that our valley may fall within its track.

So far as the cultivation of fruit is concerned, especially the grape, until of late years, but little attention has been paid to it. Since the war, however, a considerable stir has been made in that line. Several of the papers devoted to Horticulture, have found their way here, and have so stimulated our people as to induce many of them to go pretty extensively into the planting of orchards and vineyards. Agents have been around, and many hundreds of fruit trees, and many more thousands of grape vines have been set out. Some of these are now in hearing, and have shown such an improvement upon the old stock of wildings and chance fruit trees originally planted, that but for the drawback of difficulty in the transportation of fruit to market, the farmers in our valley would doubtless go more largely into the business. There are now some dozen vineyards in operation in this neigborhood, containing from a few hundred to four or five thousand vines. The Concord is chiefly grown. One of our largest operators, Dr. P. W. Anderson, has about an equal number of Concord, Ives' Seedling, and Delaware. The vines in this vicinity have not yet come fully into bearing. Last season Dr. A. made about 1000 gallons of pure Concord wine, but unfortunately by the bursting of a hoop on a large fermenting vat he lost nearly the half of it. His wine is of the very best quality; though as yet he has not been able to find a purchaser for it, and this fact, by the by, has rather thrown a damper upon the hopes of others, who have been expecting to realize handsome returns from their future crops. On the whole I fear there will be dissappointment by persons situated as we are who go into the grape business with a view of making wine in large quantities for commerce. I think it would be better for farmers generally, indeed for every farmer without an exception, to plant a small vineyard for his own use, sufficient to furnish his own family with a full supply of good wine, so that they might indulge in its daily use throughout the year. This may be done at little or no expense and with very little labor. A quarter or half an acre of vines such as Concord, or other good grape, would be sufficient to furnish a family with both fruit and wine the whole year, thereby contributing to health and enjoyment. The process of wine making is so simple that any house wife can with the aid of a few tubs, barrels, etc., manufacture it.

Our winter has been a fair though pretty cool one. So far the grain looks well, and the fruit buds are safe. The weather for the past few weeks has been fair and mild, and the sap in the early peach trees is moving. We are never very certain of a peach crop here though, and I fear the early fruit will be killed—but I am extending this rambling letter too far, and must close with best wishes, etc.

The Vineyard.

Vineyard Work for June.

By the Associate Editor.

By this time the weather will have become quite warm and the vines will be growing rapidly. They must now be closely watched and attended to in season, or the whole vineyard will twine in a mass of confusion.

Tie up loosely new shoots from the proper spurs or points from whence they should start, horizontally to fill the place of the bearing canes, unless you train on the spur system, then it will not be necessary. If the renewing shoots grow too fast and are long jointed, pinch them back to the lower wire, and train up lateral shoots in their stead, which will be shorter jointed, firmer in wood, and much better for fruiting. Keep off all the succors from your vines, and when they are done blooming pinch back all the laterals from the axils of the bearing shoots to *one* leaf, and when they start again from the axils of the last pinched shoots, and have made two leaves, pinch back again to one leaf as before, after this let them grow, unless an occasional one which may become too rampant, pinch it off.

If your vines have been properly pruned and trained there will be a surplus of fruit set, if so, pinch off immediately all imperfect bunches and reduce the quantity of fruit to the capacity of the strength of your vines.

This an experienced vineyardest can generally determine by the vigor of the vine. If too much fruit is left on the vines it will exhaust them and require years to recover, and if too little is left on, they will grow too much wood, and be more subject to the rot and the wood will make too long growth, and be immature.

Tie up your grafts as they grow, and keep off all suckers from the stalks.

Fill up your layers and keep the ground clean. Cultivate your vineyard and cuttings well and keep them free from weeds. Do all your work in season and do it well, which is always the cheapest and best.

For tying up the growing shoots we use gunny sacks, which are cheap and good, but some prefer rye straw, yucca, paw-paw bark or corn husks, but we cannot see that any of them are preferable to the twine of the gunny sacks in any respect.

Hybridization of the grape should be performed before the grapes are in bloom. The petals or caps should be removed just before they are ready to burst open. It is too late to wait until they become partly detached below, as the grape is then already impregnated. Half of the matter written on the suject is specnlative—the grape being almost an exception to the general rule. The subject is too delicate and intricate to describe in this place.

Grapes under Colored Glass. The *Horticulturist says:*

"One of the most successful cold graperies near Philadelphia has every third section of lights made entirely of blue glass. It is an important fact that colored glass does affect very materially the growth of vegetation beneath it. More than ten years ago, Mr. R. Hunt, Secretary of the Royal Polytechnic Society, of England, said that the light which permeates colored glass partakes, to some considerable extent, of the character of the ray which corresponds with the glass in color; thus, blue glass admits the chemical rays, to the exclusion, or nearly so, of all others; yellow glass admits only the formation of luminous rays, while red glass cuts off all but the heating rays. Yellow and red rays are destructive to vegetation; violet, indigo, or blue, are favorable to it."

The Grape Vine.—In his treatise on the grape vine, Mr. Mohr, a German author, says that the main parts of a good grape vine in the summer, are the stem, cane, shoot, or branch. The branch lasts about six months, from May to October, when it turns brown and becomes a cane. The cane lasts for twelve months, from October to October, when it changes to a stem. The stem lasts as long as the vine— from twenty-five to hundreds of years. The shoots of canes will bear fruit the coming year. The shoots from the stem require one season's growth to form buds to bear fruit the year after.

Prize Essay on Wine Making.--Making and Preserving.

By A. C. Cook, Covington, Ga.

Awarded First Premium at the Georgia State Fair, 1870.

Wine making from remote antiquity has ever been regarded as one of the mysterious arts, and comparatively few experts, until the fifth decade of the nineteenth century, could boast of producing wines of the finest quality. Those that excelled in this, as in all other arts, were extremely careful to keep their process a profound secret. The knowledge thus obtained by experiment and experience varied widely in different countries, lacalities, and with different varieties of grapes and qualities of soil. The art of improving wines by mixing different qualities (and adding honey to the must before fermentation, to strengthen the wine,) of wine was well understood by the ancients.

The results obtained from long practice and observation, were not derived from any knowledge of the vine or its fruit, but from careful observation of the fermentation of the juice of the grape, under different conditions of temperature, climate and atmospherical influences.

The process of extracting the juice from the grape, until the early part of the past century, and even at the present time in many countries, was of the most primitive character. The grapes were placed in a large tub or vat with a perforated bottom for the must (juice) to flow into a receiving vessel, and trodden out with the naked feet. Frequent mention of this process of extracting the juice of the grape is to be found in the sacred writings and in profane history.

Previous to the art of distillation, nothing stronger than wine of twelve per cent. alcohol was known. At this point the alcohol kills the yeast fungi, (ferment principle,) those modern sweet wines of Italy, Spain, Greece, and Scicily, which contain from fourteen to twenty-four per cent. of alcohol are produced by the mechanical addition of brandy, generally made from the same grape as the wine. Most of the grapes of these countries and Southern Asia, contain a large excess of sugar, and are generally deficient in albumen, gluten and nitrogenous compounds. The excess of sugar, also preventing the completion of fermentation, and resulting in a naturally sweet wine, and known by different applications, as Tears of Christ, the Ancient Maroulan, St. John, Thasos, etc.

Various celebrated brands of wine were thus obtained by the ancients, according to the qualities of of soil, climate, varieties of grapes, and modes of manipulation.

The list of ancient wines numbers seventy-eight, besides a large list of inferior grade. The list of modern wines, of standard reputation, comprises three hundred and sixty, besides numerous brands of local character. In the United States we have, as yet, but few brands of superior excellence. Sufficient progress in this direction, has already been attained to demonstrate the capacity of our soil and climate to develop the finest qualities of native wines. From the Norton's Virginia Seedling, Delaware, Herman, Herbermont, Cynthiana, Scuppernong, and others, we have produced wine that will compare favorably with the most celebrated wines of Europe.

Modern agricultural chemistry has thrown a flood of light on the science of wine manufacture, by revealing the constituent elements of the must of the grape, thus enabling the vigneron to develop wines of superior excellence, which under the old methods, would result in wine of inferior quality.

It is not intended in this essay to enter into an elaborate explanation of the ancient modes of wine making, or into the minutia of modern procedure; the object is to give practical illustrations of the best method of making and preserving wine. It has been known for the last half century, that wines are matured *only* by oxidation of the soluble compounds held in solution as albumen of the gluten: as long as this remains in solution, the wine is liable to become turbid, to fret, and to deposit sediment (lees,) and consequently remains unsaleable. Under the old process, oxidation was slowly accomplished in cool cellars, by the oxygen of the air (the albumenous parts remaining after fermentation,) slowly permeating through the wood walls of the cask and frequent rackings. Changes of temperature being the existing cause of disturbance, a rise of temperature expelling the carbonized air, and a fall of the mercury causing a shrinkage of the wine and consequent absorption of air through the pores of the wood; thus every change of atmosphere contributes to the slow oxidation and maturity of the wine. Many of the choice brands of European wines require from four to ten years to complete their maturity by the old methods of treatment.

Large amounts of wine are thus annually lost by evaporation, leakage and the liability to acidification and various other wine diseases; add to this interest on capital and cost of labor, renders the wine enterprise one of great uncertainty under the old modes of manipulation. Under these considerations the question naturally arises: How can we overcome this enormous loss of time, capital, evaporation, leakage, labor, and inferior quality of wine? Modern chemistry has solved the principle, (or agent) but failed to point out the mechanical application. Mr. R. d'Heureuse, of California, conceived the project of improving the fermentation of wines and other fermenting fluids, by forcing pure air through the must or other fluids to be fermented;

and at a suitable temperature to convert all the sugar into alcohol by fermentation, or to purify from albumenous matter, saccharine and other organic fluids, without fermentation by this process, at a certain high temperature, rendering them free from deterioration by elementry exposure.

This is accomplished by means of a force air pump in connection with a rubber hose and a perforated metalic pipe mouth piece or plate. The pipe or mouth piece lowered to the bottom of the cask or vat, the impelled air causes a violent commotion, and an intimate contact of oxygen with every particle of the fluid. By this method, in from five to fifteen days, all the albumenous parts of the gluten are rendered insoluble, and at the same time the sugar is transformed into alcohol. The question as above has been for many years propounded in wine countries of Europe, viz: "By what means can speedy maturity and stability be imparted to wine, so as to save the immense loss of labor, interest, storage, leakage, and evaporation?

The question has been solved by the patentee of air treatment. The discovery made is that the oxidation of the gluten, which takes place slowly during years, by the old process, can be accomplished by the proper application of the same agent, air, before and during fermentation, in less than two months, and with the most desirable results. The waste of time, and oxidation, has been the ruin of the wine industry, and the saving of this leakage as above stated, will, by adopting the air treatment, be the surest foundation on which the prosperous wine industry of the United States can rest. The theory seems as plain as the execution is simple, the air rising through the must produces two effects, viz: the mechanical stirring of the yeast, thereby a reviving and invigorating of this physiologically acting organism, and a chemical, directly oxidizing, action uniformly upon every part of the albumenous gluten, the only nitrogenous matter in the must. The air treatment, by employing artificial currents of air, essentially acts upon the living principle, that air rapidly moving over every part of solid, or in passing through an organic fluid, supports, invigorates, purifies and preserves by the ozone formed in its rapid passage. Stagnant air, however, is wanting in ozone, and in contact with quiescent fluids, or juicy solids favors speedy decay. Only total exclusion from air also preserves.

The American wine industry and production, to be worth several million of dollars annually, finds in the air treatment its principal promoter, by which quickly and economically, good, cheap and well matured wines can be manufactured in large quantities, and at low rates, to reduce the importation of wines and to suppressed intemperance by distilled liquors.

The practical application of the patent air treatment for wine making may be described in its general features, as follows, to-wit:

After the juice is expressed from the grape in sufficient quantities, and placed in a vat or large cask with one head removed, the must at a temperature of sixty-five to seventy-five degrees fahrenheit is vigorously air-treated from twenty minutes to one hour. A scum forms on the surface, consisting of coagulated albumenous and resinous matter, which should be carefully skimmed off to prevent any unpleasant taste. Violent fermentation soon sets in with copious foaming. About twenty-four hours after this subsides, gentle air-treatment for about five minutes at a time, twice a day, soon finishes the fermentation. According to the experience of the writer, the fermentation, by air-treatment is best conducted at a temperature of the must (for Scuppernong at from seventy-five to eighty-five degrees fahrenheit) at from sixty-five to seventy-five degrees fahrenheit. Must at twenty-five per cent. or less of sugar, is finished and the wine dry (that is, all the sugar converted into alcohol,) in from six to ten days; an addition of cane sugar requires longer time, unless the sugar solution is previously started into fermentation. The bung may be left fully or partially open during the fermentation, to be closed when finished.

In about a week after the fermentation has ceased the wine should be drawn from the lees into a clean cask, closed tight, and in about a month it is fully clarified by itself or by the usual clarifiers under air-treatment, is pure from ground taste and tendency to after fermentation, ripe and ready for shipping or bottling. A superior flavor distinguishes the wine thus made.

Imperfectly fermented or unfinished wines of *any kind, if otherwise sound*, may at any time be perfectly finished within a few weeks, under the directions devised for the purpose by the patentee. It never yet failed in a single case. The details of this operation are also very simple. Wines finished in this manner are rather loose in acidity than gain, while the usual *after fermentation always increases the amount of acidity.*

It is not necessary as in the old process to construct deep, cold cellars; the glutenous albumenous parts having been removed by air-treatment, there remains no disturbing agent to cause any detrimental action on the stability of wines thus made. Simply keep the casks full and air-tight, and the wine will keep as well in a garret as in a cellar.

The cost of manufacturing wine by this process will be the saving of time, cellars, casks, interest, labor and evaporation, amounting to at least fifty per cent., and give a more uniform and superior product; and be the means of placing the wine industry of the country on a footing second to no other branch of domestic agriculture. Nobody

remain behind in the march of progress without injury to himself, now that the air method finds adoption in Europe and America, revolutionizing the industries in which it is most serviceable. The merits of the air-treatment will be fully appreciated in all localities by actual *working tests*.

To invite these tests, the patentee proposes to *assign the* perpetual right for 3,000 gallons of wine annually, free of charge, to the first person in such unsold county, that adopts this recognized process. It is time that air should be economized as the mother of all organism, the result of its action noted and intelligently employed.

To demonstrate the practicability and economy of air-treatment in the manufacture of wine, the writer has on exhibition at this Fair, for premiums and sale, several varieties of dry and sweet wines, made from grapes that were hanging on the vines from the 15th of August to the 15th of September.

The Vintage of Switzerland.

From an interesting letter from Rev. J. L. Corning to the Independent, written at Vevay some time since, the following extracts are made:

One per cent. of all the land of Switzerland is devoted to the culture of the vine, and you will see that this is a large proportion when you consider that thirty-one per cent. of its area is uncultivated. This little Canton of Vaud, in the midst of which we have taken quarters, has an area of one hundred and thirty-eight square leagues, and a population of something over two hundred thousand souls. Here are sixteen thousand acres of vines, producing, according to the latest report, over thirteen million gallons of wine annually. The annual money product of the vine culture of the whole country is estimated at thirty million francs. This is a great business for a commonwealth of such small dimensions; and yet France produces seventeen and a half million hogsheads of wine every year, Austria over fourteen million, Spain nearly nine million, and Italy over two million.

I am no agriculturist; but I have learned on the Rhine. the Neckar, the Elbe, and the lakes of Switzerland, a few things about successful grape-culture. Vineyards thrive best on hill slopes, and need a soil underlaid with rock, so as to retain heat during the night. The lay of the land and the quality of the soil here in Switzerland are well suited to a rich vintage.

At the present writing the most delicious white grapes that were ever eaten are selling on the market in Vevay for four cents a pound. A month ago, at the beginning of the grape season, the price was ten cents; but we are now in the very height of the vintage, and clusters which in America are cultivated under glass and bring a dollar or more per pound, are here a drug, of which one may get a surfeit for next to nothing.

I can take your arm, kind reader, and in half an hour show you the whole story of the grape, from the vine to the bottle.

The vineyards here are all enclosed in high walls of solid masonry, and entered by narrow gates, which are always under lock and key. Now, in the vintage time, however, the gates are all open, and anybody may walk in at pleasure. You see, on entering, that the vineyard bears a stronger resemblance to a corn field than to any other piece of agriculture which we are familiar with, excepting perhaps a raspberry patch. Each vine stands all alone by itself, supported by a stick driven into the ground, and the average height of each is not more than three and a half to four feet. On counting the clusters at random, as we walk through the furrows, we find that each vine-stock produces from six to ten clusters; perhaps eight is the average.

The grand harvest season is limited to a few days; and you see here, as our eyes sweep over these green and redolent acres, that all the available force of the country is out. The women carry baskets and knives, and pluck the vines bare, while the men carry great tubs strapped to their backs, which they set down in the furrows, and receiving the clusters in these, they poke and punch and pound them with long clubs; and as each tub is filled with pulp, it is carried to the vineyard wall and emptied into huge hogsheads. So goes the work on all day long — plucking, pounding and dumping; and at nightfall you will see long processions of carts winding through the narrow streets and lanes, down the hill-slopes, to the town, where the cellars and the presses are. A curious train, indeed — all kinds of vehicles, and all kinds of quadrupeds before them — horses and mules, oxen and cows, harnessed to the foaming pulp, and dragging it every whither to be civilized. Let us follow one of these processions to the cellar. Here a great trough conducts from daylight down into subterranean vats; and into this the seething contents of the hogsheads is emptied, and gurgles down to a receptacle, whence it is allowed to drip for a while, till all the juice which it will spontaneously discharge is taken away. Then the residuum of pulp, rinds and stems is shoveled into a machine which resembles an old-fashioned cider press; the screws are put on, manipulated with a great hand-lever, and the result is, as to the dripping tubs, gallons of new wine, and as to the press, an immense cheese of fiber, which is good for nothing but to cut into cakes, and utilized as fuel.

☞ In the Massachusetts Agricultural College, many young ladies are being instructed in horticulture.

"The Main Requisites in Grape Culture."

After an experience in grape culture of many years, Geo. W. Campbell thus writes to the *Journal of Horticulture:*

"In 1861, at the request of the late Commissioner Newton, the writer prepared an article for publication in the Patent Office Report of that year, giving in full the result of our experiments and the general conclusions to which we had arrived; and since that date, in the thousands of acres which have been set to grapes in this part of the country, there has been no material deviation from the system there advocated as the result of our experience. The whole may be summed up in a few words—thorough underdraining, shallow planting, (just deep enough to set the roots properly,) vines set in rows north and south, six feet apart in the rows, and the rows eight feet apart, very little if any summer pruning, and the main pruning in winter, according to circumstances. These are the main requisites.

The writer was applied to a few weeks since, for an article for publication in a leading journal on the subject of grape culture. He replied to the application by referring to the article in the Patent Office Report of 1861, and stated that since the publication of that article he had no reason to change his views therein expressed. On the other hand subsequent experience has confirmed every leading principle there advocated.

As to the theory of giving the vines twice or ten times the room which we have adopted, as a general principle, it may be well enough for those who are disposed to try it. I have known eight bushels of Isabella grapes to grow on one vine, when there was no other vine within a hundred feet in any direction; and this vine was trained all over a large building; and I have myself paid for eight tons of the same variety, grown on one acre, the vines six by eight feet, or forty-eight superficial feet to each vine. The question is: Which system will grow the greatest quantity to the acre, and with the least expense? I have vines in my experimental vineyard which were set in 1843, and they are now apparently as healthy as those set twenty years later, which seems conclusive evidence that grape vines, if properly treated, may be made to thrive on forty feet of good soil. I am of the opinion that eight hundred vines to the acre, if properly managed, will yield more fruit than half the number of vines on the same surface. In this respect, I would say, let every one give his vines as much room as he pleases, provided it is not less than forty-eight superficial feet to each vine."

☞Examine your grape vines for a small gray bug and a worm of similar color. They are damaging vines about here.

Grapes for Raisins, and How Made.

The Utah *Pomologist* gives the following account of the varieties of grape most valuable for raisins, and the method practiced in their preparation.

"Although we have often referred to this subject, we think its importance is worthy of being again brought forward. Experience here for the last few years has proven that at present and prospective prices for wine, raisins will not only find quicker sale, but produce a more profitable crop, especially when barrels, casks and storage are so expensive.

As this is the planting season we will again make mention of such varieties of grapes as we have found by experience to make the best and most profitable raisins, so far as we have been able by fruiting and curing to learn.

The Sultana makes a small, seedless raisin of much excellence. The Bowood Muscat for a crop, stands first on the list for size, quality, and producing heavy crops. Then follows White and Red Malaga, White Muscat of Alexandria, White Muscatel, Cannon Ball Muscat, White Nice, Chasselas Mosque, Chasselas Fontinbleau, Canadian Chief, etc. Care should be taken in pruning if grapes are grown for raisins, to prune the vines of all small wood, and not allow too many or small bunches to grow, and thus your fruit will be large, and when fully ripened make raisins as fine and large as any imported.

For curing, the fruit should be allowed to hang on the vine until it begins to shrivel, then cut the stems and spread the bunches upon tables or upon dry ground, smoothed and cleaned off for the purpose, so arranged that all can be conveniently reached—so that the bunches may be carefully turned over every other day for ten or fifteen days, according to the temperature of the weather, and until all the grapes cease to yield any juice when smartly pressed between the thumb and finger. When fully cured they should be taken up soon after midday, allowed to cool in a close room, and then packed in layers, with paper between, in boxes carefully lined with clean blank paper, and firmly pressed into the boxes, nailed up and put away in a cool dry place.

Should any doubt our capacity for making large, fine and luscious raisins, let them call and taste our specimens, and their doubts will disappear."

Mouldy Casks.--Wine for Vinegar.

"The best method for curing mouldy casks is to take out the bungs and ventilate the casks for several days by boring another hole. Mix then one half gallon of water with 120 grammes of sulphuric acid for every 20 gallons capacity of the cask. Pour it in and shake it carefully. Then empty the

cask, prepare a limewater, (three quarts water, one quart lime,) pour it into the cask and rinse it strongly. The cask is then cleaned and well sulphured, and the bung put on tightly.

The cask will thus be perfectly freed from all bad taste, and may be filled with wine without any risk.

Wine not sufficiently sour to be converted into vinegar, in which acetification has commenced must be left open to the air in a room of warm temperature for three or four days. Then rack it off two or three times through shavings of beechwood, which have been freely moistened with good vinegar.

An excellent vinegar will promptly be obtained by this method."—*Wine Reporter.*

Potash in Grape Culture. The *Journal of Chemistry* gives the following results of an analysis of a Black Hamburg grape vine:

"Potash, 20 parts in a hundred; phosphate of lime, 19 parts in 100; carbonate of lime, 13 parts in 100; soda, 3 parts in 100; magnesia, 4 parts in 100; with small quantities of iron, magnesia, silex, etc. The fruit evaporated to dryness, and ignited to obtain the ash, gave of—potash, 34 parts in 100; phosphate of lime, 11 parts in 100; carbonate of lime, 9 parts in 100, with small amounts of earthy substances. From these results he finds mineral food, which the vine and its fruit require in the largest quantity, is, first, potash; second, phosphoric acid; and third, lime."

If the above analysis of the grape vine and its fruit be correct, it affords a valuable hint to grape growers.

Bleeding of Grape Vines.—It should be understood by every one who grows a grape vine that if broken or cut in the spring after the sap starts, it will bleed to the injury of the vine, nor do we know any remedy. A correspondent of the Small Fruit Recorder, however, claims to have found a remedy in the use of potatoes. He says:

"We select potatoes a little larger than a large hen's egg, and make a kind of drill of a stick of wood a size less in diameter than the limb or branch to be taken off. The stick is dressed four square, and tapering to a point. This is inserted into the larger end of the potato, and a hole drilled to the center. The stub end of the limb is dressed to rather an abrupt point, which is introduced into the hole in the potato and crowded in a little farther than the middle, so that the potato shall perfectly fit the end of the limb or stub. In the months of April, May and June we took off many limbs and several large branches, and employed potatoes as a styptic, and do not know that any one of them bled a single drop."

Training the Grape on Rocks. One of our exchanges (we think it was clipped from the *Massachusetts Ploughman,*) says of Mr. J. H. Currier, of Ryegate, Vt., in this wise:

"He selects a strip of land at the base of a high, steep ledge of rocks, with a southern or eastern exposure; all loose substances are removed from the soil for a distance of fifteen or twenty feet in width. The vines are set near the foot of the rocks, and trained up the perpendicular face of the ledge. As early as August last, the Delaware and Hartford Prolific hung in rich, ripe clusters. Concords and Isabellas about a month later, with the largest clusters and in the greatest abundance we have ever seen. Even in cool seasons, the rocks retain so much sun heat that the early frosts do not injure the vines."

Hale's Early Peach.

Mr. Bateham, an experienced peach grower, at Panesville Ohio, in summing up on the peach crop of 1870, says:

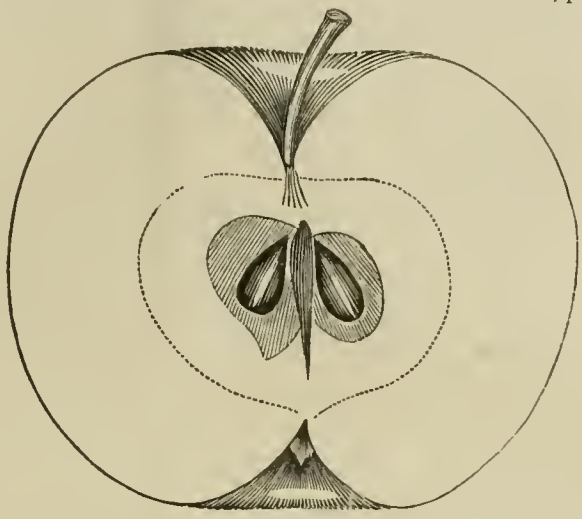
"*Hale's Early* was particularly abundant and fine, though much complaint was made of the fruit rotting just at ripening time, and after being picked, before it could be marketed and sold. In one of my orchards, on high, dry, sandy soil, where the trees had made but moderate growth, this fruit was very fine, and showed no tendency to rot. But in another orchard, within sight of the first, and the trees of the same age, but lower and richer soil, where the growth of trees was larger, the fruit of *Hale's* rotted so badly, that much of it which looked fair at picking was unsaleable the next day.

Cultivating Orchards.

In a conversation not long ago with Mr. David Ayer, one of the substantial farmers of Vassalboro', he gave us some account of the method in which he manages his apple trees, and the success of the plan may be gathered from the fact that among the products of his orchard last year were five hundred barrels Baldwins, all of so good a quality as to bring 25 cents more per barrel than those of the same kind in market from other producers. The ground in which his young trees are set is cultivated to hoed crops—generally corn and beans, or beans alone—and well manured. The latter do better in the shade than corn or potatoes, hence he not unfrequently devotes all the land in which are young trees, to this crop. The surface of his old orchard is kept open by plowing and harrowing, and no grass is allowed to grow therein. This is done even where no other crop than the trees occupies the land. He uses muck as a top dressing, and regards it better than strong manure, or even compost. The somewhat famous Smiley orchard at Getchell's Corner, is top dressed with clear muck, after it has lain in heap one season.—*Maine Farmer.*

The Fameuse, or Snow.

In February last we received from Mr. Wm. M. Clemons, of Minerva, Marshall County, a few specimens of this apple, which, for beauty, could not be excelled. They were above medium in size, perfect in form, and so completely overspread with dark red as to be more black than red; out of twelve of his most favorite sorts, Mr. Clemons regards the Fameuse best. So well pleased is he with both tree and fruit, that he ordered seven hundred root grafts for his own use, and to be doubly sure of getting the "Simon pure," cut the scions from his own bearing trees.



The Fameuse appears to be perfectly adapted to all sections of Iowa. It has everything to recommend it; tree hardy, and fruitful, and though not very attractive in the nursery, does well in the orchard. Fruit handsome and of fine quality; flesh snow-white, tender, with slight perfume. In 1867 Mr. J. L. Budd, of Shellsburg, wrote to us about the Fameuse as follows:

"The wonderful adaptation of this truly excellent apple to the open prairies of the strict Northwest, is not so generally known as it should be. All I might say in its praise, would not attract the attention of the prairie farmer, as would a statement of its actual yield of fruit. Eight years ago I set in an orchard of four hundred trees, twenty trees of *Snow* apple. They were then three years from graft. Last season I gathered from them *seventy* bushels of apples, and sold them at $2 per bushel. The year before I had twenty bushels, the year still before, about five bushels. Almost two hundred dollars worth of fruit from trees so young, and really just beginning to be profitable, surely is better than growing ten cent corn upon the same amount of ground! And the tree is not only productive, but so far as I know, as hardy as an oak. Last winter when most of the one year old nursery trees in this part of the State were winter-killed, the *Snow* and Siberian crab alone escaped unharmed. Had all my trees produced fruit like the Snow-apple, and I might add the Jonathan, my income would be truly large.

With or without windbreaks, in the wildest and bleakest prairie of Iowa, plant *Snow* apple, and trust me, you will thank me some day for this recommendation."

Growing the Cranberry.

Mr. H. H. Bush, Concord, Hancock County, Iowa, wishes an article on the cultivation of the cranberry, and says— "I think in this part of the State there is a good deal of hog land suitable for growing the cranberry, at all events we are anxious to try it."

No doubt there are thousands of acres of land now comparatively worthless in Iowa, in every essential just as well suited to the growth of this excellent fruit, as are the best cranberry lands found in Wisconsin, Minnesota, or New Jersey—States in which its culture has become an important branch of fruit growing, and still receiving increased attention. In the absence of any practical experience of our own, we will give such information upon the subject as appears to us reliable.

In making a cranberry plantation the first and chief point to be considered is the soil. It should be boggy, marshy, wet land, but susceptible of drainage by ditching to the depth of eighteen inches or more. Means also, for flooding the ground as occasion may require, is essential. This protects the vines and fruit at certain stages of growth from both frost and insects. Both vine and fruit are sometimes attacked by an insect, against the attacks of which there appears to be no remedy but flooding. Nevertheless if our correspondent has the right kind of soil, we advise a trial, though it may not

be susceptible of flooding with water. We have seen the cranberry growing in New Hampshire on low, moist land, overflowed only when the snow was running off in the spring, or on the occurrence of a heavy rain.

Probably the most reliable information upon cranberry culture may be found in the following extracts from a communication to the Wisconsin State Horticultural Society, by G. N. Smith, Secretary of the Berlin Cranberry Growers' Association.

"The lands from which the cranberries marketed at this point are gathered, are situated a few miles to the west and north-west of us, and may be described as a succession of marshes, or rather an extensive marsh, interspersed with islands of timber land, varying in extent from hundreds to thousands of acres. * * * *

But a few years ago these marsh lands were considered almost worthless, with the exception of small portions along the borders yielding grass They were covered mostly with a thin growth of wire grass, and small Tamarack, with occasional patches of cranberry vines, and were so wet that no animal dare venture far out on them, and in some places it was dangerous for man. Being a portion of the swamp lands donated to the State by the general government, a small drainage fund was created in the towns in which the lands lie, and consequently some twelve or fifteen years ago, the town of Aurorah commenced a ditch at the junction of this marsh with Fox river through lands of which the late Edward Sackett of Chicago, accidentally became the owner. The effect of the drainage was to produce a vigorous growth of cranberry vines, and annual crops of fruit. This induced Mr. Sackett to extend the ditches and build a dam for flowage; and the result exceeded his most sanguine expectations, for he was enabled to gather largely increased crops, and at the time of his death, which occurred in the early winter of 1864, he was realizing a large annual income from his lands.

There were others in the vicinity who soon began to perceive that an investment in these swamp lands promised a large return for the needed capital; and accordingly the lands were rapidly purchased of the State—the towns were enabled to extend the ditches, which, together with the improvements made by the owners, has rendered this branch of fruit culture of greater value, and far more profitable than any in the State, the crop having amounted the past season to eleven thousand barrels or thirty-three thousand bushels, and it has realized the sum of not less than $120,000. To obtain this amount from wheat, it would require, estimating the yield at ten bushels per acre, and the price at one dollar per bushel, twelve thousand acres. * * * *

It is well understood by those most experienced that certain requisites are necessary to secure a vigorous growth of vines and annual crops.

First, a deep soil of swamp muck combined with sand, resting on a soil of sand or blue clay.

Second, the land so situated as to be controlled as to flowage and thorough drainage.

That sanding the marsh from two to four inches deep as practiced by Eastern cranberry growers is not necessary on our marshes, has been fully demonstrated for several years in the growth of the vines and in quantity and size of the berries.

A thorough drainage of the marsh during the warm season and more especially during August and September, and flowing at least from one to two feet in depth through the winter and spring months seem to be the important requisites. The best drained lands produce the largest and deepest colored fruit, while the flowing destroys the insects and their germs, also weeds and grasses, and serves as a protection to the vines.

In planting the vines comparatively little was done until last fall, when several hundred acres were set, and this will be continued the coming spring. No preparation of the land is necessary on open marsh, with but little growth of wire grass on it. The sod is punctured and one or more vines inserted and pressed down with the foot, and it is seldom a plant fails to grow, and they often produce a few berries the season after setting, being of so hardy and vigorous a habit that the fruit bud is not affected by removal. The third season a small crop may be expected, and by the fifth or sixth year the vines will have taken possession of the ground and a paying crop may be expected.

The difficulties cranberry growers have to contend with are less than with almost any kind of fruit. Yet the cranberry has its enemies, and they must be attended to. The worst of all is the insect known as the Cranberry Worm. In appearance it is almost identical with the leaf roller found on the apple. The miller generally comes about the time of the blossoms, say from the middle of June to the first of July, and lays its eggs in the top of the young vines or that part producing the fruit. In a few days, more or less, according to the temperature of the air, the worm appears, and like all insects is gifted with a voracious appetite and an ability to indulge it. The consequence is that if not checked, the vine is rapidly stripped of its foliage, and the crop destroyed. This worm or one similar works somewhat on the berry, but thus far has not proved very troublesome. The only known remedy for the destruction of insects is the effectual flooding of the marshes, and it seems to be pretty sure. *

The crop per acre exceeds in value any other that can be raised. Several growers the past season have gathered full two hundred bushels per acre, receiving therefor six hundred dollars. The

expense of picking, cleaning, and marketing did not exceed, if it equalled one-third, leaving four hundred dollars, net profit as no labor or expense was incurred in planting the land. A much larger rate per acre has been realized in places where the vines had full possession and were of sufficient age to bear a full crop. It is no exaggeration to say that three hundred bushels per acre can be raised on land in right condition, and when the season is favorable. * *

A brief statement of the number of bushels gathered by some of the largest growers, will give some idea of the value of a bearing cranberry marsh:

Carey Brothers gathered and sold 3,400 barrels, average price $11 per barrel....	$ 37,400.00
Deduct one-third for gathering, cleaning, barrels, &c.....	12,466.00
Net income for 1870.....	$ 24,934.00
The marsh belonging to the Sackett estate, yielded 2,000 barrels, estimate $11 (now quoted at $47 per bbl. in Chicago.)	$ 22,000.00
One-third off..	7,660.00
Net income for 1870.....	$ 14,340.00

The Blueberry.

Mr. J. G. Knapp writes to the Western Farmer about the blueberry, and he evidently knows whereof he speaks, for we have seen the whole thing just as he talks it up. There are two sorts of the blueberry — or rather in habit of growth — distinguished as the high and low bush. Mr. K. is talking of the latter, which grows to the height of ten to eighteen inches. The high bush is seldom if ever found on light, sandy soil, but is generally met with on low, wet land, or heavy upland. Unlike almost any other plant or shrub, the blueberry will not thrive under cultivation. All it wants is to be let alone. On a visit to New Hampshire in the autumn of 1864, we took up and brought home plants of the high bush, and now have them fruiting upon our own grounds. As to whether the low bush will flourish upon ordinary prairie soil we cannot say. In the Eastern States it is not often met with except on the sandy plains, or on the rocky mountain and hill sides, where little or nothing else *will* grow.

"What have you got to say of them? A good deal, and in favor of their growth and cultivation. Do not men cultivate cranberries, and make money at the business? But cranberries grow in swamps, and cannot, in this State, be grown much elsewhere. They cannot be grown in all swamps in all parts of this State. Naturally the plant is limited to a belt of the State, and, from what is now known of the nature of the plant, its limits cannot well be extended much north and south of this natural belt.

Blueberries grow along the same belt of land, but more extensively than the cranberries. They grow on the dry lands, on the sands, where almost nothing else grows. These plants will take entire possession of the land on which they grow, if permited to do so. When they shall do so, they will produce as many bushels to the acre as do the cranberries, of which we hear so much said of their profitableness.

The two plants are in the same natural family; the one sour, the other with just acid enough not to be insipid; the one requires pound for pound of sugar to render them palatable, the other are by nature food for man, beast and bird; the one can be preserved by cooking pound and pound, and canning air-tight, the other dries more easily than any other berry, and with a small quantity of acid they can be made to rival the Zante currants for all culinary purposes. Their season is longer than any other berry we have; and they are as regularly sought for. No berry carries better to market, unless in such quantities as to be crushed by their own weight.

All the care they want is a piece of sand, too barren for grass or oak grubs, and just so much tending as shall give them all the sunshine. Take such a piece of land, cover it with bushes, give them their liberty the year round, without the interference of goat or sheep, and the owner will keep off the hens and turkeys, and he has nothing to do but harvest the crop. It makes its own manure, and ties its own sand firmer than a mortgage. All vacancies will fill from new plants, or may be filled by hand.

There are thousands and thousands of acres in Wisconsin that are to-day valueless, that might be made to yield a hundred or more bushels each, if planted to this humble plant. Let us hear from some of the sand planters on this subject."

Forcing Strawberries.

At a meeting of the Pennsylvania Fruit Growers' Society. D. M. Herstine related his method of forcing the strawberry. He said:

"I prepared the ground about as an amateur would for open air culture, trenching deep and manuring heavily. Set the plants in the spring, one to every foot square, keeping clear of weeds and runners during the summer, cultivating moderately. Before hard freezing commences, or at any time during the fall, set the frames, which should not be over fifteen inches high on the one side, and ten to twelve inches on the other, giving only sufficient slope to carry off the water. The most convenient width for the frame is eight feet, and sash four feet wide. The plants should receive about the usual winter mulching, as in open air culture, of leaves or clean straw. About the middle of February, or as soon after as the weather will admit, the mulching should be removed and the sash put on; a healthy growth will soon com-

mence, and the only care they require after that is the proper airing, an occasional weeding and watering. I let them have all the warm rains that fall during February and March. I have always succeeded in ripening fruit about the first of May, or four weeks before it ripens in the open air, and of the largest size and finest flavor, much larger than I have ever grown the same varieties out of doors. From a frame 8 by 16, I picked the first crop 25 quarts, the second 22, and the third 15 quarts. From a frame 100 feet long, 8 feet wide, I picked the first crop 120 quarts, which I sold at an average of about two dollars per quart, starting at five dollars and down to one dollar, netting two hundred and twenty dollars, and the whole cost of the sash and frame was one hundred and fifty dollars, and they will last for ten or more years.

Not more than two full crops can be taken from one bed; in growing for profit, it would probably be advisable not to depend on more than one; that would only involve the necessity of shifting the frame every season, which is a small matter. The varieties I have found best adapted to this mode of culture are the 'Wilson's Albany,' 'Russell's Prolific,' 'Jucunda,' and 'Stinger.' I tried various others without any success; Triomphe de Gand, Agriculturist, Fillmore and others, and in growing for profit I would discard all but the two first named. The Jucunda and Stinger attain to an enormous size, are moderately productive, but not sufficiently early for profit."

Does the Stock Influence the Graft?

This question being up for discussion at a meeting of the Michigan Pomological Society, Mr. B. Hathaway made some statements, predicated upon some years of observation, that strongly favor the affirmative side of the question.

He said of the truth of the general proposition that the stock influences the graft, there can be no question to a mind trained to close observation upon this subject.

That the vigor of the graft is greatly dependent upon the vigor of the stock, can hardly be a matter of controversy. That a vigorous, strong growing variety, like the Northern Spy apple, will infuse something of its own vital force into a weaker growing sort, like the Red Canada, is not a matter of conjecture, but has been abundantly demonstrated.

Probably some kinds of fruit, like the Rhode Island Greening apple, have so strongly marked an individuality, are of so marked and positive a type, that the variation from the influence of stock, would seldom be appreciable; while in another variety, like the Rambo, for instance, that is easily varied by conditions, that it would always be more or less apparent, and often very strikingly manifest; and I have not observed any other sort that exhibits so great a variation from the influence of stock as this variety, in all the characteristics of size, color and flavor.

In order to secure a positive, a marked variation, the grafts must be set on trees of such age as to have established a character and individuality of some potency, and the stocks for experiment must discover strongly marked contrasts.

Yet this variety is not alone. I find those of a more positive character giving every evidence of variation from the influence of stock. The Northern Spy is one of these.

I have ten trees of root-graft Northern Spy on which the fruit is always nearly alike as to size and color, except what results from the amount of fruit on a tree; while on forty trees of this kind put on large seedling stocks, the variation is marked and constant. That is, some trees give more highly colored fruit than others, and do so from year to year without regard to amount of crop, and the same variation is found in size and quality.

I have one Northern Spy on Rhode Island Greening that always gives me my largest specimens for the fairs, though of a pale color. Two trees, close by, grown on Esopus Spitzenberg, always give fruit highly colored, but not so large. These are only a few of the most noticeable examples that have fallen under my observation, in which marked differences in the fruit may be justly attributed, as I think, to the influence exerted by the stock. It is conceded that the character of the seed, in which resides the germ of the future tree, is dependent mostly, if not wholly, upon those subtle aromal influences that are instrumental in the fructification of the blossoms. But few, however, have thought to attribute to this cause any portion of difference observable in the size, color and flavor of different specimens of the same fruit grown on the same tree and under apparently the same conditions.

I this year gathered a half-dozen apples from a Rambo tree, that were as completely russeted as any apple can be, and those apples were more crisp and firm than the ordinary Rambo apples—very like the Pomme Grise in quality, and no one would suspect from their appearance that they were not that apple. And I have seen many kindred facts that go to show that the subtle influence that affects fructification does not stop with that act, but is traceble in every stage of developement of the fruit from the quickened germ to the ripened pulp.

And does not this view accord with all the known laws of generation in every department of nature? And while we may not doubt that the stock exerts very often a marked modifying influence in determining the character of the fruit, we must not overlook, in our estimate, the less obvious, but no less powerful principle of inflorescence.

Carbolic Soap for Borers.

Mr. M. B. Batcham, an extensive peach grower in Northern Ohio communicates to the *Ohio Farmer* his experience in destroying the peach borer by the use of carbolic soap. Mr. B. believes the remedy may be successfully used on the apple tree borer. If so, it is much easier and more sure than hunting out the larvæ after it has entered the tree. Give it a trial.

"I have found a cheaper and better remedy than the one mentioned in last week's *Ohio Farmer*, or in any other publication that I have seen in my thirty years of horticultural reading. I have used it the past two years on my three thousand bearing peach trees, with complete success, and with great saving of labor and loss of trees. I have no doubt it will be equally effective for the apple tree borer, and thus prove of immense value to orchardists generally. It is as follows:

Take a five pound can of carbolic soap (cost two dollars); dissolve in ten or twelve gallons of hot water, stirring it freely, if to be used immediately or let stand over night; then add about twenty gallons of cold water, making a barrelful of the liquid which is sufficient for one thousand trees. The soap can be had in one pound cans, for those who want small quantities.

Now take a hoe and clear away the weeds or rubbish close around the base of the trees, removing also a little of the loose earth just around the bark, say for an inch in depth. Then take a bucket of the liquid and with a paint brush apply it freely to the bark of the base of the trees for six to ten inches from the ground, taking care to have it enter the crevices, (where the eggs are most likely to be deposited), and let a little flow down so as to moisten a little ring of soil just at the base.

I make this application about the middle of July, when the parent insect (*Ægeria*) has about finished depositing her eggs, and if any young worms are hatched, they will not have penetrated beyond the reach of the liquid. I am convinced that it prevents any further depositing of the eggs for the season, unless heavy rains speedily occur, in which case a second application may be necessary where the borers are very plenty.

For young trees, where tender roots are liable to be reached by the liquid, it will be safer to use it weaker—say ten gallons of water to the pound of soap. I am experimenting with this article for preventing other insect ravages.

Dried Fruit. In Lyndeborough, N. H. two families last fall cut and dried 250 bushels of apples, which when dried weighed 1,451 pounds. They were sold in Boston at an average of 21 cents per pound—amounting to about $300.

Growth of Forest Trees.

The *Maine Farmer* speaks encouragingly of the growth and re-production of forests in that State, in the following statement:

"The growth of forest trees in favorable situations is more rapid than people are generally aware of. In a recent conversation with a farmer in Somerset county, who is now over eighty years of age, but whose mind is still unimpared, he stated that in 1832, thirty-eight years ago, he cut all the hemlock and spruce timber upon a certain piece of woodland, for a barn frame, adding that every tree which was large enough for a girt was cut. "Now," said he, "another barn frame, as large as the one I then put up, can be cut from the same piece of ground."

A writer in a recent issue of the *Daily Journal* mentions the following: In June, 1816, when a small boy, he was harrowing in oats on some new land in Franklin County. Thirty-five years afterwards he was on the same ground, and found a thick forest, where at the time men were hewing timber eighteen inches square for a bridge. Twenty years ago, upon the home farm of the writer was a field of grass, the original forest growth of which had been then recently destroyed by fire. Now upon the same field is a splendid growth of birch, spruce, hackmatack, poplar and other trees, many of them forty feet in height, and a foot or more in diameter."

Every farmer not too far advanced in years, ought by this time to understand that he plants not for his children, but for himself, and not for himself but for his children. This double motive should result in such a growing of forest trees among us, as we have not for years seen the like of."

Average Growth of Trees.

Three or four years ago the Illinois Horticultural Society appointed a committee to prepare a report on the cultivation and growth of forest trees. The committee concluded an able report by saying:

"As the results of our observations and from the testimony of reliable men, we regard the following as about the average growth in *twelve years*, of the leading desirable varieties, when planted in belts or groves and *cultivated* as directed—

White Maple, 1 foot in diameter, and 30 feet high.

Ash-Leaf Maple, 1 foot in diameter, and 20 feet high.

White Willow, 1½ feet in diameter, and 40 feet high.

Yellow Willow, 1½ feet in diameter, and 35 feet high.

Lombardy Poplar, 10 inches in diameter, and 40 feet high.

Blue and White Ash, 10 inches in diameter, and 20 feet high.

Chestnut, 10 inches in diameter, and 20 feet high.

Black Walnut and Butternut, 10 inches in diameter, and 20 feet high.

Elm, 10 inches in diameter, and 20 feet high.

Birch, (varieties,) 10 inches in diameter, and 25 feet high.

Larch, 8 inches in diameter, and 24 feet high.

As before intimated, the different varieties of Evergreens mentioned, will make an average growth of eighteen to twenty inches in height annually.

From these and other data which the intelligent farmer can collect, he may readily *approximate* estimate of the cost of fence posts, rails, fire-wood, hewing timber, lumber, etc.

Sounds of Pines—The Sleepless Aspen.

Henry Ward Beecher thus hapily portrays the beauties of the pine and the ever restless aspen:

"The pine sings like the poet, with no everyday voice, but in a tone apart from all common sounds. It has the power to change the associations, and to quicken the poetic sensibility, as no other singing tree can do. Every one should have this old harper, like a seer or a priest among the trees, about his dwelling. Under an old pine would naturally be found the young maiden whose new love was far across the sea. In the sounds that would descend, she could not fail to hear the voices of the sea—the roar of winds, the splash of waves running in upon the shore. A young mother whose first born had returned to God who gave it, would at twilight go to the pines; for, to her ear, the whole air must needs seem full of spirit voices. They would sing to her thoughts in such sad strains as would soothe sorrow. Nor would it be strange if, in the rise and fall of these sylvan syllables, she should imagine that she heard her babe again, calling to her from the air.

Every country place should have that very coquette among trees, the aspen. It seems never to sleep. Its twinkling fingers are playing in the air at some arch fantasy, almost without pause. If you sit at a window with a book, it will wink and blink, and beckon, and coax, till you cannot help speaking to it! That must be a still day that does not see the aspen quiver. A single leaf sometimes will begin to wag, and not another on the whole tree will move! Sometimes a hidden breath will catch at a lower branch, then shifting, will leave them still, while it shakes a topmost twig. Though the air may move so gently that your cheek does not feel it, this sensitive tree will seem all of a shudder, and turn its leaves upward with a shuddering chill! It is the daintiest fairy of all the trees. One should have an aspen on every side of his house, that no window should be without a chance to look upon its nods and becks, and to rejoice in its innocent witchcraft. I have seen such fair sprites too, in human form. But one does not get off so easily if he takes too much sport with them. The aspen leaf makes no wounds. Its frolics spin no silken threads which one cannot follow and will not break. The musical qualities of trees have not enough been considered in planting around our dwellings. The great leaved Magnolias have no sound. Willows have but little. Cedars, Yew trees, and Lombardy poplars are almost silent. It is said that the Lombardy poplar is the male tree, the female never being brought over. It is very likely. It is stiff enough to be an old bachelor. It spreads out no branches. Its top dies early. It casts a penurious shadow."

Barren Apple Trees—Remedy.—The St. Jo. (Mich.) Herald says: "First, the Northern Spy, Red Astracan, and a number of other choice varieties of apples, have failed through this region to bear apples, although ten or fifteen years old. Two years ago, Dr. Hull, of Alton, delivered a lecture at Benton Harbor, in which he recommended root prunining. Mr. A. O. Winchester, of St. Joseph, of Archer & Co.'s Nurserymen, had ten Northern Spy apple trees, thirteen or more years old, which had never blossomed, or borne a crop. After the lecture, though late in the season, he directed his man to root-prune one tree, and half root-prune another. Last year, no favorable results appeared, probably from the lateness of the root-pruning. This year, the tree which was root-pruned all around, is full of blossoms, while that side of the tree half root-pruned alone is full of blossoms, the un-root-pruned side having none at all. Every other Northern Spy apple tree, as usual, contains no blssoms.

This single fact should lead our orchardists to try the experiment this season. Now is the time to begin, and the work of root-pruning should be finished by the first of June.

Long Keeping Apples. The Utah *Pomologist* says:—"In California the yellow Newtown Pippin and white winter Pearmain are among the best keepers.

We have proved the latter to be not only of superior flavor, but that it will keep here in good order until the first of May. The Limbertwig is even a better keeper, but not as high flavored or as large.

Miller's seedling, "Cherokee," is a new aspirant to favor; medium size, handsome red, of good flavor and long keeping. It has not yet been fruited here.

The Vegetable and Flower Garden.

Garden Work for June.

By the Associate Editor.

Plant bush beans for succession. Plant early blood turnip and long blood red beets for late crop, between the 20th of June and 10th of July, on rich fresh plowed ground, in drills eighteen inches apart. Soak the seed in warm water a few hours before planting. Beets sowed at this season will be much finer in quality for winter use.

Sow Flat Dutch cabbage in the hill on very rich, fresh plowed ground, the 15th of the month, for winter. Open drills with a narrow shovel plow, three feet apart, and drop about a dozen of seed in a hill, three feet apart in the row, and cover with a rake or light harrow. We have tried this method of planting cabbage and find it much the best. The cabbage must be thinned out to one plant after the plants are a good size. Fill up vacant places, or transplant on an other plot the balance left, if desired.

Early Horn carrots can be sown for late crop early in the month. Celery may be transplanted for early crop. Plant Evergreen Sweet corn for a late crop in succession up to the 20th of July. Plant short green and long green cucumbers for a late crop about six feet apart. Some prefer the Jersey pickle.

Plant potatoes about the 20th of the month, for late crop on moist fresh plowed ground, and cover them as fast as dropped, or they will sun scald in a few minutes, in the hot sun. This is the best season to raise good late potatoes, much better than planting in May or late April.

Radish may also be planted for winter use about the last of this month. Black Spanish is good, but the Rose Colored Chinese is much better and more handsome, and sells better. Ruta Bagas may also be planted about the 25th of the month. Make drills with the narrow shovel plow twenty inches apart, and sow the seed in the drills, and cover with the harrow.

To succeed in planting this month, the ground should have been plowed previous to planting, and kept free from weeds, and then fresh plowed when planted, and the seed put in on the fresh stirred soil, and well cultivated afterwards. The great secret of success is in planting the seed at the proper time, on well prepared ground, and then thorough cultivation afterwards.

Late cabbage and tomatoes should also be transplanted. This month, and up to the 10th of July is preeminently the season to plant late vegetables for winter use.

Tribulations of Cabbage Raising.

The Committee on Vegetables of the Middlesex (Mass.) Agricultural Society in their report at the last fall fair, thus enumerates some of the difficulties cabbage growers have to encounter in the Old Bay State.

"Fifteen or twenty years ago it was comparative fun to raise cabbages; to-day the little destructives whose name is legion, have made a successful crop other things being equal, almost accidental. First comes the little flea, who commences on the just developed leaves, and often finishes them; next the maggot, who loves the roots. After transplanting, the cut worm presents his claim, generally no modest one; he makes clean work, cutting the plant completely off, either at or just below the surface. If you have successfully avoided this little army of marauders your crop is still open to the attacks of lice and the club foot.

In raising plants for resetting, I select an elevated, comparatively new, and but moderately rich piece of ground; elevated because the flea is less destructive than on low grounds; nearly new to avoid stump foot and maggot, and not over rich that the plants may be toughened by a slow growth; upon resetting into a richer soil they will commence a rapid, vigorous developement.

As soon as the twin leaves show themselves they should be dusted with lime every morning and after rains. To secure plants from a few choice seeds make a square frame six inches high, and cover with mosquito cloth. I prefer transplanting rather than sowing seed in the hill, because then, if you lose your plants it is generally too late to sow again, and you are obliged to use whatever plants may happen to come to hand.

The Grass Valley (Cal.) Union tells of forty strawberries that weighed one pound.

Hot-bed Culture of Water Cress.—It is generally supposed that this plant can be successfully grown only in a running stream of water. A correspondent of the *Gardener's Monthly*, however, says it may be grown in a hot-bed, and gives the following directions for doing it:

"Permit me to recommend through your valuable Monthly, the most wholesome and most productive of all salads grown in winter and in spring, and yet the cultivation of it is little known, and almost entirely neglected by those who do know. This water cress is a native of Great Britian, and is found wild in the small streams more or less through the whole country, and is cultivated on a large scale around London. Although this cress is considered amphibious, it thrives better in an ordinary hot-bed from October until April, and requires no re-planting. I Whitewash the glass, and give very little air except when raining, which saves watering, which it requires at least once a week. A full crop can be cut every three weeks. I generally cut one-third of a sash each time, so always get a succession. About the first of April a quantity of plants should be transferred to some cool, wet place, where they will live during the summer, and be ready for the hot-bed in the fall."

Canning Fruit.—A correspondent of the Small Fruit Recorder says: "I have tried the following for canning fruit for several years with the *best success*, and it is a great saving of time and trouble: Bring the fruit to a scalding heat, and sweeten or not, as you choose. When the fruit is ready to put in the cans, take a piece of old quilt, or six or eight thicknesses of cloth wet in cold water, and wring out so that it will not drip; lay the cloth on a table and set the cans cold upon the cloth which has just been wrung out of cold water; fill the cans with the hot fruit and seal up as usual, and do not move them, not a hair's breadth, till the fruit is perfectly cold. There is no danger of breaking the cans *unless you move them before the fruit is cold.* This saves heating the cans, which is the worst part of canning fruit. The tops generally need tightening a little when the fruit is cold.

Burr's New Pine Strawberry. At a late meeting of the Montgomery (Ohio) Horticultural Society, the members present generally concurred in recommending Burr's New Pine Strawberry to amateurs as the best for table, if they can get genuine plants. A few Wilsons or a male plant should be planted with them.

Winter Protection of Roses. Another member of the above named Society remarking on winter protection of trees, vines, plants, etc., cuts down his roses to twelve inches, filling around them with coarse straw manure, then covers them up with boards, never fails to keep them through winter, not even his tea roses. In the spring removes the manure, leaving two to four inches of the finest as a mulch; has plenty of roses all summer without watering. Another speaker said that the flowers of rose bushes which remain in the ground through winter, where they have been growing in summer, will be much larger and more perfect than those which are dug up in the fall, and planted again in spring.

Carbolate of Lime for the Currant Worm. The Boston *Journal of Chemistry* says the currant worm may be almost immediately destroyed by the use of carbolate of lime. It was used in several instances last season, and found quite as effective as hellebore, less costly, less disagreeable to apply, and perfectly safe. Neither the fruit nor the foliage is in any way injured by its use. The method of using it is to sprinkle it over the bushes as soon as the worm makes his appearance, bringing it well in contact with the leaves, and the insect is destroyed. It will need but two or three applications, and the work is done.

Mildew on Roses.—Rub down in a gallon of soft water one pound of soft soap; with the solution, sprinkle the upper and under surface of the foliage, and the mildew will disappear as if by magic. Mr. Rivers recommends a cure in soot. Perhaps soap is more cleanly; it is, I am sure, as effectual—though I do not for a moment doubt the efficacy of soot—and an outlay of one shilling will clean one hundred plants from every vestige of the disease if properly applied. I find it useful to syringe the trees with clear water, next day, to rid them of the whitish deposit which fixes on the edges of the leaves after the application of the solution. There is no necessity to cut off the blooms; the solution could only damage these in proportian to the force with which it hit them, and as contact with the mildew is all that is required, no force is necessary.—*Cor. Cottage Gardener.*

Hints About Flowers.—House plants ought to be stimulated gently once or twice a week. Rain-water, so refreshing to summer flower, always contains ammonia, which also abounds in all liquid manures. If you take an ounce of pulverized carbonate of ammonia, dissolved in one gallon of water, it will make spring-water even more stimulating to your plants than rain-water. If you water your plants once in two weeks with guano water (one table-spoonful to a pail of water) they will grow more thriftily. Chicken's manure dissolved in water is excellent. Always keep the soil in your flower pots loose. A common hair-pin used daily will stir the earth sufficiently.—*Boston Journal of Chemistry.*

Entomology.

Dr. S. H. Kridelbaugh, Editor, Clarinda, Iowa.

☞ Send in the Insects.—Dr. K. is chairman of the Committee on Entomology for the State Horticultural Society, and would take it as a favor to be furnished with specimens of insects from the various localities of the State, by mail during this year. Those sending will please state all they know concerning the habits of the insects sent; what they are found feeding on, etc.

Oyster Shell Bark Louse—Aspidiotus Conchiformis, Gmel.

This insect, although becoming general, is not a native one, but is of foreign origin—imported to this country. It is a terrible enemy to apple and pear trees, and may be justly dreaded by every fruit grower.

At this season of the year, and during late falls and all winter the presence of this insect is easily determined, by the small scales on the trees, a very correct representation of which is given in the marginal figure of a twig of the apple tree. The excrescences, or scales, which are the skins of the mother oyster shell bark louse, are of a greenish brown color, underneath each of which will be found a number of milk-white eggs. These eggs are deposited in the fall and remain all winter until warm weather, about the first of June, when they are hatched out and become very minute, living beings, so small that without the use of a good michroscope they are scarcely observable. Presenting the appearance of minute, natural dots on the bark of the twigs they infest, and would be liable to be taken for such as they scarcely move at all. At the approach of autumn, when full grown, the females deposit their eggs for the next year's generation, covering them over with their own dead and dry skins, in the manner represented in the marginal figure.

Many horticulturists mistake this insect and the Native American Bark Louse.—*Coccus Harrisii*, for *Aphis Mali*, the common apple tree plant louse, but from what we have said, no close observer will be liable to fall into this error.

During the fall and winter the eggs are red and not white in this native species; the scales or shells, too, are not uniform in their shape, being splashed around on the infested trees, in about equal numbers of rounded, oval-shaped scales, and long oyster-shaped scales as represented somewhat magnificent at A and B in the annexed cut. Some writers have accounted for this difference—claiming one to be the male and the other the female, but the fact is well established that this is not true, as under each class of scales eggs are found.

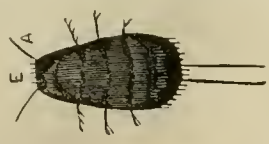
Remedies.—To keep bark-lice in check nature has furnished a very small michroscopic creature—a mite—known by the name of *Acarus Malus*, Shimer, which preys unmercifully on the bark-louse and its eggs; and it is perhaps due to the presence of this tiny being that the native species of lice do not become more numerous than they are. Mites are not true insects, but belong to the class of Spiders—*Arachnida*; their head and throax are one body, without any division—not cut into. It requires the aid of a good pocket-lens to discover the presence of these little fellows on infested trees.

The Twice-stabbed Lady-bird, *Chilocorus bivulnerus*, Muls., is known to prey on bark-lice, both in its larvæ and perfect state, and a few of these put on an infested tree will soon show signs of its good work.

The Lady-bird family is a bug about the size of one-half of a common garden pea, and much resembles it in shape, the one from the forest is black and red, while those of the garden are pink with black spots. A valuable species of insects which should by no means ever be harmed or destroyed; of its history we shall have something to say in the future.

Artificial remedies for these terrible orchard pests may be summed up thus: Where it is practical scrape off the scales, lice and eggs under them, and burn the scrapings. Where scraping is not practical, as on the ends of the twigs, cut them, the twigs off and burn them, or thoroughly brush them with a stiff brush, and burn the matter brushed off; where neither of these remedies cannot be used, wash the affected parts with petroleum or kerosene, as no wash except one of an oily nature will penetrate the scales. During a period of about three days, occurring in the last of May or first of June, depending on the character of the season, the eggs of bark-lice are hatched out; after which hatching the lice have only an active period of about the same length of time, three days, and while in this condition is the only time much can be done with them with washes; strong soap suds freely syringed over trees infested is about the only efficient remedy.

"This insect is so small that no appearance of life or insect form can be detected in it with the naked eye. The branches of trees infested with it have the appearance of being covered with a scaly incrustation, under which the insect lies, except two or three days, in each year, when they leave the old scales and crawl around over the trees and establish new locations, thus effecting their spread over more surface. Under a good magnifying glass they appear as represented in this figure.



"Its antennæ, A, with the four short palpi between them, E, its six legs, and two long hairs behind, are the principal features. What the short hairy projection may be, we cannot tell, but suppose them to be nothing but bristles. How singular that so minute a creature should be productive of so vast damages."

There is no means of estimating the damage this insect will do, as in its path certain death is strewed wherever it is found, and too much care cannot be taken to prevent its spreading throughout the country, which it will do if left to take its natural course.

Queries About Insects—What Are They.

FRIEND KRIDELBAUGH.—I send you by this mail box of bugs. The big one is merely a sample of those that fly about evenings so plenty that they sound like a roaring wind. I have not discovered what they live on. Somebody told me they eat the cottonwood.

The small bronze bugs are playing smash in my nursery; there are just one thousand million of them on the place. They are skinning the leaves off my rose bushes, mountain ash, plums and several other varieties; don't touch apples or cherries. They work in the night, and burrow in the ground and lie dormant during the day under the tree.

Last night I built up a fire to try to coax some of them in; but nary a one would accept the invitation to warm himself. By the light of the fire I could see them feeding on the roses. I am in hopes that their day will be over soon.

The worms enclosed are feeding on the willows in the nursery. Potato bugs are very plenty all about here. While picking them the other day, I observed the hard shell wings of hundreds of them lying on the ground; what became of the bugs?

H. C. RAYMOND.

Council Bluffs, May 21, 1871.

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Lachnosterna quercina—Diplotaxis frondicola—Nematrus ventrelis, and Doryphorra 10-*lineata.*

REMARKS.—The first insect you mention is the perfect imago of the May Beetle, *Lachnosterna quercina.* It appears to be plenty in several localities. We hear of it at Oregon and St. Joseph, Mo., as well as at your place and Des Moines. Of it at the latter place Mr. Miller, the editor-in-chief, in a note to us says:

"We have never known this bug (or perhaps more properly called beetle) so numerous before at the time of its flight, which commenced here about the 15th of May. Nor have we ever known this insect to do much, if any injury above ground before. As usual its flight continued but a few evenings. But during its stay some kinds of trees were literally defoliated. The Lombardy poplar, mountain ash and the birch, appeared to be its favorite resorts—the birch in particular. These trees were alive with them, and when shaken the dropping of bugs reminded us of old-time walnut picking in a frosty morning. This insect when in the larvæ or grub state is especially fond of the potatoe. We have known potatoe crops seriously injured by it. It will be well to call the attention of farmers to it, for it is evidently multiplying fast.

For the sake of giving our readers correct and scientific knowledge concerning this insect, we copy from the Journal of Agriculture the following descriptions, by Prof. C. V. Riley, State Entomologist, of Missouri, of THE MAY-BEETLE.

Fig. 1.

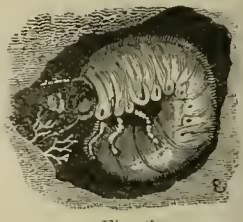

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 1—Pupa of the same. Fig. 2—Larvæ or "White Grub." Fig. 3—Side view of Beetle. Fig. 4—Back view of the same.

"The specimens sent were the common May Beetle. (Lachnosterna quercina). The "White grub" is one of the very worst and most insidious of the farmer's foes, and well known to every body. That this beetle is the parent of it, however, is not so very generally known. I have carefully prepared the accompanying illustration, which will give the metamorphoses at a glance, and do away with verbal descriptions of so common an insect. It is characteristic of the beetle to appear in vast swarms during the month of May—earlier or later, according to season or latitude. The beetle is quite voracious, and often greatly injures both fruit and ornamental trees. I have known the Lombardy poplar to die, in consequence of the utter denudation they caused; but as their existence is short, and they are confined to the foliage, their injuries are exceedingly small compared with those which their larvæ inflict upon us. Our meadows, straw-

berry beds, corn, vegetables, and even young nursery stock, are all subject to the attacks of these white grubs, and often ruined by them. Soon after pairing, the female beetle creeps into the earth, especially wherever the soil is loose and rough, and after depositing her eggs, to the number of forty or fifty—dies. These hatch in the course of a month, and, the grubs growing slowly, do not attain full size till the early spring of the third year, when they construct an ovoid chamber, lined with a gelatious fluid; change into pupæ, and soon afterwards into beetles. These last are at first white, and all the parts soft as in the pupæ, and they frequently remain in the earth for weeks at a time till thoroughly hardened, and then, on some favorable night in May, they rise in swarms and fill the air.

This, briefly given, is their history, though it is very probable, as with the European cock-chafer (a closely allied species), that, under favorable conditions, some of the grubs become pupæ, and even beetles, the fall subsequent to their second spring; but, growing torpid on approach of winter, remain in this state in the earth, and do not quit it any sooner than those transformed in the spring. On this hypothesis, their being occasionally turned up in the fresh beetle state at fall plowing, becomes intelligible.

As natural checks and destroyers of this grub, may be mentioned the badger, weasel, skunk, martin, the crow, and the different hawks, but especially the CARABIDÆ among insects, some of which were figured in the *Journal* of May 2. Hogs are fond of them, and will devour great numbers, as will also fowls. Ashes and salt serve a good purpose in the garden, and the roller is doubtless beneficial in the field. During their periodical visits as beetles, they should be shaken from the trees, gathered up, scalded and fed to hogs. As an illustration of what may be done in the way of hand picking, I will state that under the efforts of M. Jules Reiset, the incredible amount of 160,000 kilogrammes, or about eighty millions of those white grubs were collected and destroyed in a portion of the Seine-Inferieure of France, during the autumn of 1866.

The second or Small Bronze Bug is the *Diploloxis frondicola*, of Say, of its transformation and natural history we know but little. A mixture of nine parts of flour and one part of Paris Green, judiciously applied on the leaves of the plants they infest when damp, would, no doubt destroy many of them, if not all. It is highly probable that some of the disasterous work which you attribute to this insect, is also due to the presence of the May-Beetle.

The "worms inclosed" are the larvæ of the *Nematus Ventralis*, of Say, a small four-winged black fly. The "worms" come to hand all neatly enclosed in cocoons, and after a few days hatched out perfect imago. In our Report to the State Horticultural Society, at its session in January last, we mentioned this White Willow Worm. Last year we heard of it in several localities in the State. Every means should be used to destroy it.

The Doryphorra 10-lineata, has quite a number of natural enemies, and judging of from what you say, you are blessed with a good supply of them.

Boll-Worm on Roses—Heliothis Marginidens.

Dr. Kridelbaugh: Herewith please find specimens of a new insect foe to my roses. For several days I have noticed that the buds were being punctured at the tip, and thought it was the work of a caterpillar that is quite numerous on the bushes, and have hunted for and destroyed them (the caterpillars) two or three times a day, until I think they are mostly exterminated. But this morning I find the buds in a sad plight. On a cottage rose bush where there are many hundreds of buds formed, and some expanding, scarcely a dozen can be found but what have been nipped at the tip, and some punctured at the side also, so badly that they are turning yellow and falling off. Roses that are wholly or partly opened are comparatively free from the worms, but in the center of almost every flower are marks of the enemy; the stems and pistils are gnawed out, and a dark, shiny, sticky substance left in their places, about as adhesive as thick gum water, and where it has dried on the inner pistils they are stiffened so that further expansion is impossible.

Altogether, the prospect for roses is gloomy indeed; for with all the wealth of bud promise—they are immensely full of buds—we shall have on some sorts no perfect flowers. Ragged, gnawed petals, opening less than one fourth their usual size, and gummed and discolored as they are is most aggravating. I think I will try arsenic water on sorts that are not much infested as yet, and try to save them. But it is too late now to save the Cottage, Prairie Queen and Black Tuscans. Are you acquainted with this worm? and can you recommend a preventive of its future ravages? Our roses heretofore have been exempt from any serious foe.

A. A. M., *Des Moines, Iowa.*

REMARKS.—The bottle of cuttings from the rose you sent by mail was received in good condition. Besides the cuttings it contained the larvæ of the *Heliothis Marginidens*, of Guenec, a deep rust-colored moth, belonging to the same genus as the Cotton Boll-worm, (*Anomi Xylina, Say*) and Corn-Worm (*Heliothis Armigera*, Hubner). The specimens were in excellent condition and of all sizes, from half grown down to those which were but just hatched, of beautiful pale green color, bedotted over with minute black specks.

Would like to hear the result of your application of a solution of arsenic, although we have but little hope that it has relieved you of your pests. Hand picking among the Boll-Worms has thus far been the best remedy.

The Western Pomologist.

Frogs Spitted on Thorns—Criticism.

Ed. Pomologist:—I have been too busy to write you further upon the above subject. On page 24, current volume, I gave, at your request, my explanation of the curious facts illustrated. You chose to differ from me, and have been supported by Mr. Jacob Stauffer, of Lancaster, Pa., which is all well enough. But do you know that you have by no means convinced me that I was wrong and you right in our respective explanations. Had you witnessed, as I have done, the manner in which beetles and other more delicate insects are sometimes impaled by these butcher birds, you would no longer wonder how a frog could "be so nicely and thoroughly impaled upon the thorns of the trees by the beak of any bird, with no other signs of mutilation than shown by the perforation of the thorns upon which they were lodged." Now, as a matter of scientific interest, I am curious to know, as near as we can ascertain with absolute certainty whether these frogs were really spitted by birds or showered down from above. Please give us the facts therefor. If your position be the correct one it may be easily demonstrated. Firstly, if the frogs were showered down, the chances of their being spitted on thorns would be extremely slight unless they were *very* numerous. How many frogs did you find? Secondly; as these frogs, when found, were quite fresh, you must have had a rain storm the very day previous to their being found. Was there any such storm? Thirdly, as the two specimens in my possession are spitted on thorns,—growing much nearer the horizontal than the perpendicular inclination, and as in one of them the thorn is broken and has a dull and blunt point, the storm must have been a very furious one. Did any such furious storm occur?

Mr. Stauffer's argument, if it proves anything only goes to show that animals as large as these frogs may sometime be showered down from above, a fact which I have by no means denied. The question is not, however, what has been or may be but what *was* in this particular instance. Whenever a simple, tangible and demonstrable explanation can be given of any phenomenon, it is not wise to discard it for one which is more vague and less tangable; unless very good reasons can be given. In the true spirit of candid inquiry, I ask for all the facts which you are able to give. If you can bring forward accumulative evidence that the frogs were rained down, you record a most singular and unusual phenomenon, and I shall be very willing to change my verdict. Until you do so, I must adhere to the more common explanation.

St. Louis, Mo. C. V. Riley.

Remarks.—We "cave" on the frog question. From observations made the past spring among our nursery and orchaad trees, we no longer doubt its being the work of the Butcher Bird, for we find beetles, (one case of a snake) and other things hung up in like manner, and with no more mutilation. However, we still think, that showers of frogs do occur. The frogs were not "quite fresh" when discovered, but perfectly dry and stiff.

"Stop and Think."

Ed. Pomologist: You will see that I have changed my locality. I find this a fine fruit and blue grass country. Peaches, apples and cherries are pretty sure crops here, and the country healthy, with timber and coal in great abundance. All that is lacking to a full development of our resources is northern enterprise.

In your September No. D. W. Adams says—"Stop and Think." He draws a comparison between the health, longevity and fruitfulness of forest and fruit trees now and in times of old, and wonders if we are not overdoing—forcing our horticultural operations beyond measure. Well may we "stop and think." But after all, forest trees are not wholly exempt from the calamities that befall our domesticated fruit trees, plants, etc. The wild cherry in many places is injured by what is called the black knot, which by some is supposed to be caused by an insect. In Pennsylvania after the wild cherry mostly disappeared, in clearing up portions of the forest, the morello cherry trees were attacked and their usefulness destroyed by the same enemy. The canker worm and the tent caterpillar prey upon forest trees. The borers destroy the locust, and often the jack oak.

Now, my conclusions, based on fifty years experience, are that we do not always give orchard trees the requisite amount and right kind of nourishment. Take a lesson from nature—she stimulates a growth both by mulch and manure in the leaves that annually fall from the trees, undergrowth of wild plants, decaying wood, etc. The healthiest apple tree within my knowledge stood for many years in the midst of a rotting chip pile, which had been accumulating for years. The tree grew, was very fruitful, and no insect meddled with it. Taking a hint, I commenced applying similar material mixed with leached ashes to my trees, and with astonishing success.

Jesse Higbee.

Queen City, Scuyler Co., Mo.

The Onion Grub. The *Rural New Yorker* says the most efficient remedy for the onion grub is irrigation. If it is practicable to flood the garden affected by the grubs, it will almost totally annihilate them. After a copious shower of rain they disappear.

Keeping Apples.

Ed. Pomologist: Noticing a complaint of apples rotting worse than usual last season, I thought perhaps it would not be amiss to give my mode of keeping them for the last two winters—seeing the mode with me has proved all that could be desired—the fruit as fresh and sound to-day as when put up, and but very little riper.

I take a barrel or box and put a layer of leaves in the bottom, then a single layer of apples, and so alternately till full; not allowing the fruit of any layer to come nearer than a half inch of the side of cask, the spare room being filled with leaves. Each layer of leaves when compressed should be about one half inch deep, and the leaves thoroughly dry.

Some of my apples were gathered some time before leaves fell, consequently very ripe when packed, but held their own nicely, till used up some months later; but those packed same day of gathering have scarce undergone any change. Thus packed, they require a cool, dry room—ours stood down to zero without freezing. So packed and cared for, I have no doubt but ordinary fall apples would keep well into, if not all winter. Shall try it another season. Apples should be handled with care. Mine were all picked by hand, and no bruised ones put in.

Peter M. Gideon.

Excelsior, Minn., Feb. 26, '71.

"Price's Sweet."

Ed. Pomologist: In the spring of 1870 I set out about 300 apple trees from a nursery in Ill. I went there for the trees because I could get many varieties. Ten of the trees that grew remarkably well are labelled "Price's Sweet." I cannot find a description of "Price's Sweet" in any book or catalogue. If you are acquainted with the apple, please describe it if worth a description.

James Bush.

Hebron, Iowa, 1871.

Remarks.—We can't help you on "Price's Sweet." Don't know anything about it. Nor do either Elliott, Downing, or Warder appear to, as no mention is made of it in their works. We reckon you have caught a "Tartar" in that lot of trees.

Fruit in Wisconsin.—Mr. Charles Waters, Springville, Wis., writes May 29—Apples blossomed very full, and a full crop is promised, especially of the Haas, as usual. Wild plums have mostly got the "big head." About the 20th they swelled and rotted. Miner will give a fair crop. Grapes very promising. Early Richmond and Kentish cherries promise well. Small fruits in abundance.

Fruit in Minnesota.—Mr. M. T. Berry, Minneapolis, writes May 20. My trees came through the winter first rate. I had a few of the following kinds: Fameuse, Red Astrachan, Yellow Bellflower, Wagoner, Tallman's Sweet, Haas, Colvert, Ben Davis, Duchess, Transcendent, Hyslop, and the main Yellow and Red Crabs, Soulard, small Red Crab, four kinds of cherries, and one Miner Plum, none of which were the least killed the past winter. My Fameuse has blossomed, so I am in hopes to get a few regular apples this season. I have strong faith that we will be able to raise the most of the kinds you sent me, by starting them here while they are young.

Fruit in Pennsylvania.—Mr. J. B. Garber, Columbia, Pa., writes May 18. Fruit is promising—peaches, pears and cherries bearing a full crop, and apples though many trees did not bloom but very sparsely, the blooms seem to have all set, and are now swelling up. Trees all look more healthy than for many years past. Small fruit, too, as raspberries, strawberries, blackberries, etc., all show a healthy and promising appearance. Indeed our crops of grain, grass, fruit, etc., all are in a fair way of giving us full crops.

Is Tetofski a Crab?—Mr. Wilmot D. Scott, Galena, Ill., writes, "What more propriety is there in calling Tetofski a "Russian Crab" than in calling Yellow Bellflower a "Western Crab." Mr. Gould was first in applying the name "Russian Crab." What are his grounds for applying the term Crab to the Tetofski? Will he tell the readers of the *Pomologist?* There is nothing of a crab nature about it, and this giving a desirable, hardy, good fruit a bad name, I object to."

Fruit in Georgia.—Mr. A. C, Cook, Covington, Ga., writes May 20—We have so far had a very cold and wet spring, very unfavorable for Agricultural and Horticultural operations. Apples, figs and quinces scarce; pears, plums and peaches good. Prospect good for grapes and wild black and dew berries. Cherries a failure. A large crop of cotton is again planted. We are getting poorer every year, and will so continue until we diversify our industries.

Peach Trees and Babies. The Willamette (Oregon) *Farmer* tells of a man in that State who has made it a practice to plant twenty-five peach trees on the birth of every child in his family. He has gone bravely on in the good work until his peach orchard numbers three hundred or more trees. How much further he intends to push the enterprise deponent sayeth not.

Destroying Ants. We have never seen these pests so numerous as the present season. They seem to be every where, and to permeate everything both in and out of doors.

FIVE WAYS TO DESTROY ANTS.

1. Pour copiously, hot water as near the boiling point as possible, down their burrows and over their hills, and repeat the operation several times.

2. Entrap the ants by means of narrow sheets of stiff paper or strips of board, covered with some sweet, sticky substance. The ants ants are attracted by the sweet, and, sticking fast, can be destroyed as often as a sufficient number are entrapped.

3. Lay fresh bones around their haunts. They will leave everything else to attack these, and when thus accumulated, dip them in hot water.

4. Pour two or three spoonfuls of coal-oil into their holes, and they will abandon the nest.

5. Bury a few slices of onions in their nests, and they will abondon them.

San Francisco Fruit Market. The *Pacific Rural Press* of May 5th, says of the fruit market:

"Cherries, Gooseberries, etc. have made their appearance in the market during the past week. Of cherries, three lots have been received, selling at $1.25, 75c and 50c per lb, closing yesterday at 75c. Of gooseberies, the first lot sold at 18c. The receipts of strawberries during the week have been steadily on the increase, aggregating 180,000 lbs., or an average of 30,000 lbs. for each day, the price meanwhile dropping from 10@15c to 6@7c. On Monday the receipts were forty-thousand lbs., and on Tuesday 50,000 lbs. The trains of Wednesday morning brought 27,000 lbs. strawberries, which found a ready market at 6@7c for choice in baskets."

Beautify Home.—The Southern Farmer says: "Beautify your home. It is astonishing to see how much can be done year by year to adorn and beautify the farmer's home and its surroundings. A few trees set out here and there; a few old decayed trees grubbed up, perhaps, and removed, an unsightly wall or fence taken out of the way; in a thousand ways, indeed, beauty may be made to spring out of deformity, and that, too, without any serious expenditure of time or money."

Lime for Fruit Trees. The Horticulturist says: "It is a good plan for all fruit growers to apply lime freely in their orchards every two or three years. A half bushel to each tree, or 100 bushels broadcast, per acre, will suffice."

One bushel of wood ashes is worth two of lime for the same purpose. Every quart of ashes made by a fruit grower should find its way to the orchard or the garden.

Big Strawberry Picking:—The Norfolk, (Va.) *Journal*, of the 10th ult., says: "Mr. Anderson on Monday shipped from his farm near this city, fourteen thousand quarts of strawberries, the fruits of one picking from his patch of nearly one hundred acres. The culture of strawberries is one of the most profitable branches of the truck trade in this vicinity. More can be made from one acre in strawberries, than from ten in corn."

Salt for the Strawberry. The Norfolk *Virginian* is informed by a practical horticulturist that during an overflow from an extraordinary storm, a strawberry bed was partially covered with brackish water at the time when fruit was forming, and also that the occurrence stimulated the vines to greater perfection of fruit and general vigor, a discovery that may prove of advantage to fruit raisers in the vicinity of salt water.

Florida Peaches.—A correspondent of the *Rural New-Yorker* writes, April 9: "I have three peach trees. now nine feet high, and from one inch to one inch and a quarter in diameter, one year and one month old. They bloomed in February and fruited several peaches, but shed them at the size of a filbert. One of them is still holding two peaches the size of a large hickory nut."

Potash for the Peach. In a paper read before the American Philosophical Society the author stated his belief that the short life of peach trees is due to a deficiency of potash in the soil, and asserts that if this alkali be supplied to the tree so that it shall reach the small roots and be absorbed, the fruit bearing power is restored and the fruit itself, prematurely perishing, is revived.

An Old Apple Tree. The Claremont (N. H.) *Advocate* states that Mr. Samuel Andrews, of that town has a stately apple tree standing near his house, which last year yielded him forty-six bushels of large, fair and excellent flavored apples. The tree is now in its eightieth year, bears fruit perennially, and to all appearances will continue to do so for eighty years to come.

California Wine in London.—London is beginning to send orders to San Francisco for California wines. One thousand gallons of Cocomongo was the last order received. Some of these wines are esteemed in London superior to those of Europe.

Large Strawberry Crop. Wm. Boots writes from San Jose to the *Pacific Rural Press* that from 14 acres, he sold in 1869, forty-four tons of strawberries, and in 1870 a little over forty-one tons—bringing in the aggregate $11,800.

THE POMOLOGIST

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MARK MILLER,
Editor and Publisher, - - - *Des Moines, Iowa.*

DR. J. STAYMAN.
Associate Editor, - - - *Leavenworth, Kansas.*

DR. WM. M. HOWSLEY,
Corresponding Editor, - - - *Leavenworth, Kansas.*

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Kansas State Horticultural Society.

First Summer Annual Meeting, at Highland, June 6th & 7th, 1871

BY THE ASSOCIATE EDITOR.

The Society met at 9 A. M., at the University chapel. The meeting was called to order by the President, Dr. W. M. Howsley, of Leavenworth.

Prayer by Rev. S. M. Irvin, of Highland. Music by choir. Welcoming address by Rev. M. McConnell, of Highland. Response by Prof. Mudge, of Manhattan. Music.

Address by the President, which was listened to by a large and intelligent audience, and was well received, and then submitted to a committee to report on it, consisting of Messrs. Hall, Snyder, and McConnell. Mr. W. Trevett, of Highland, was in the absence of Mr. Brackett, appointed Secretary, *pro tem.*

ADDRESS OF PRESIDENT HOWSLEY.

The Kansas State Horticultural Society was organized at the city of Lawrence on the 10th day of December, 1867. It has since held three annual sessions—one at Leavenworth city, in December, 1868; one at the city of Ottawa in December, 1869, and the last one at the city of Manhattan, in December, 1870.

At the last meeting the constitution was so amended as to provide for a semi-annual meeting, to be held in the month of June of each year. The session which we now propose to hold, is the first semi-annual one which will have been held of this kind in Kansas.

You will see from the printed programme which has been prepared by the executive board, what is the usual order of business, and the subjects which are deemed of most interest for discussion.

As our field of operation covers the whole ground of Horticulture, embracing the cultivation of *fruits*, *flowers*, and culenary vegetables, from the germination of the seed to the final completion of the crops, it was found, that to have a single meeting in the year, and that usually in the dead of winter, a very large and interesting proportion of our friends, the *ladies*, were cut off from having any participation in the displays and discussions of those subjects most thrillingly interesting to them. A summer meeting, therefore, is the very thing needed, that our female friends may have ample scope for all their ambition in the display of the earlier garden fruits, vegetables, and above all, of flowers This is the season of the strawberry and the rose. The former the Prince of *summer*-berries, and the latter the Prince of *summer*-flowers. These standing each at the head of the list in its class, is followed by all the fruits and flowers of their season—a single annual meeting would virtually exclude, not only the display of those fruits and flowers from our tables, but would in like manner deprive us of the presence and the aid of our fair friends, who add so much to the interest of all such occasions.

It is hoped, therefore, that every lady and every

gentleman, will feel herself and himself, *especially* invited to participate to the fullest extent, of her or his feelings, in everything which may be deemed necessary to make this first semi-annual meeting of the Kansas State Horticultural Society an occasion of thrilling interest, and one long to be remembered, with pleasure, by every one now in attendance, as well as those who may hereafter attend during our session.

It is intended, by all the officers now in waiting upon this meeting, that every effort shall be made to elicit all the facts and opinions thought to have an important bearing upon Horticultural knowledge, from each one participating in the forthcoming exercises.

We frequently meet with facts which go to overturn all the pre-conceived notions we may have had upon some important point for years. Hence, we are compelled to commence a new course of investigation, reasoning from effect back to cause—when a great many facts are brought to bear upon the same subject by different persons, from different soils, from different locations, and under different circumstances, all pointing in the same direction, we may fairly conclude, that we have at least, a starting point, from which the truth may be ascertained.

It is desirable that every one, detailing facts on this occasion, will, as far as possible, give them just as they occurred, uninfluenced by any opinions heretofore entertained. It is only from the simple unvarnished facts, that we may reasonably hope to arive at the truth.

We of Kansas, are all from other climates, and other soils, and have all, no doubt, brought with us opinions and biases that go to influence sometimes unfavoaably our practice in Horticultural operations.

In a climate and soil comparatively new to many, if not all of us, there are many things which demand our closest observation, and most patient study. How important these become, when we remember what an influence the soil on which we propose to plant, has upon the result—not only does a suitable soil have a controling influence upon our efforts, but there is also such an adaptation between the tree or plant to be grown in it, that we must ascertain this adaptation of each to the other, or our efforts will not, nay, they *cannot*, be successful. As an illustration of this fact, we find, that in certain kinds of soil the pear tree worked upon the quince will succeed admirably, while if worked on the pear root, it will do scarcely any good; and in other soils the pear on its own roots does finely, but if worked on the quince it is almost an entire failure.

Next in importance to the influence of soil upon plants, and of adaptation of plants to soils, is that of atmospheric influence. Here we have a wide field open before us for exploration and investigation. The study of meteorology or rather of *atmospherology*, is one of the most important, that can engage the attention of the Horticulturist, whether in the growing of fruits, flowers or of vegetables. On this part of our subject *temperature* occupies a very controlling position; perhaps there is no other of *equal* importance.

The application of this principle, between the points where vitality is destroyed by intense heat, or intense cold, are quite varied and very important—hence in planting orchards, we must take these points into consideration, and direct our operations accordingly. Here aspect, elevation, (actual and relative), are each to be considered in all their diversified bearings upon this subject.

Having devoted ourselves to the study of soils and climates, or atmospheric influences, we next turn our attention to the study of entomology, or the insects, which are inimical to our success as well as those which are our friends, also the means best suited for the destruction of the one and the protection of the other:

4. Ornithology. The study of ornithology, or a knowledge of useful and inimical birds, plays an important part in successful growing, especially of fruits.

5. Botany and Vegetable Physiology. No one can be either a successful or scientific horticulturist without becoming, at least to some extent, acquainted with these branches.

1. To recapitulate—we would say, you should look to your soils, and learn whether clay, sand or lime predominates, and whether to an injurious extent that the remedy may be applied.

2. Study the nature and character of your climate. Study the influence which altitude, (whether actual or relative), has upon the crops you wish to raise. Ascertain, if you can, why it is that fruit is more easily killed in a humid atmosphere than in a dry one? Why it is that fruits are more generally killed in the valleys, than on the side of a hill or on the hill top? And why it is that this general rule is *sometimes* reversed? Why it is that apples and pears are harder to be killed while the buds are dormant in winter than peaches? And why it is that the peach just before the blossom is fully opened, will endure colder weather than the apple or the pear under like circumstances? Why it is that the finer or budded varieties of peaches are more easily killed in winter while the buds are dormant, than seedlings, as a rule? Why it is that so many more varieties of apples and pears have generally failed to bear this year than the stone fruits, seeing that the murcury in many places, where this failure prevails, did not fall lower than from 10 to 12 degs. below zero.

3. When we come to study our insect enemies,

why it is that the round-headed borer generally prefers to attack the apple-tree at the collar, or just at the surface of the ground, rather than higher up the trunk and in the branches, while the *flat-headed* bore, as generally, if not uniformly, is found on the trunk and branches, and that too upon the south-west side.

The foregoing questions are more or less important and bear more directly or indirectly upon the growing of fruits, as also upon flowers and garden vegetables. The satisfactory solution of these questions upon scientific principles, will go very far towards placing horticulture among the exact sciences.

Until these points are at least approximated, doubt and bewilderment will, to a considerable extent, beset the path of the secker after horticultural knowledge. Hence the importance of making each of these points a matter of thorough and searching investigation.

We are aware that while many of the foregoing interogatories are admitted as facts, there are others which are still held as mooted questions by many.

That these points may be fully investigated is the principal reason we have for presenting them in the form of questions.

Hoping that the foregoing *remarks*, though in rather a crude form, will awaken a lively interest in our discussions, and that our knowledge and pleasure in horticultural persuits may increase with our years, and that we may hereafter have many pleasant interchanges of thought and feeling, they are with all due respect submitted for your consideration.

Mr. E. Snyder, from Ad-Interim Committee, reported verbally: That the apple crop was variable, good in some places, other places indifferent. The peach crop generally good, although some varieties of budded peaches have failed. Strawberries good, but cut short by dry weather. Also, Raspberries and Blackberries promised well. Grapes never better than this season.

Discussion on the relative hardiness of seedlings and budded peaches was participated in by Dr. Howsley, Snyder, Hall, and others. Dr. Howsley rather favored the theory that budding had a deleterious influence. He thinks that those varieties of seedlings that have large blossoms are more liable to endure severe cold. He spoke at some length upon the subject. Agreed to by Mr. Hall. Adjourned.

AFTERNOON SESSION.—2 P. M.

Prof. Mudge in the chair. Music. The hardiness of peaches was resumed and discussed by Mr Hall, Mr. Snyder, Mr. Edgerley, Mr. Hatch, Dr. Stayman, Prof. Kelsey, Dr. Myers, and President Howsley.

The question being asked, why seedling peaches are more hardy than budded varieties, Dr. Stayman remarked that there was a physiological law existing in the vegetable kingdom as well as the animal. That no exclusive, peculiar quality or property could be propagated continually except at the expense of some other quality. The peach being a fruit which can be propagated so readily and rapidly by seedlings, it is likely to degenerate very soon. For instance, the peach has a tendency to produce its kind more frequently than other fruits, therefore we are in the habit of selecting the best seed of seedlings, and planting them in hope of producing good or better varieties, and the seed of the best of those are planted again, and we have so continued to the present time, which has degenerated the constitution of the improved varieties, and given us a race of defective budded peaches.

To get hardy peaches we will have to go back to our best hardy seedlings, and start anew—keeping in view the constitution, as well as the quality, in the production of new varieties. Music.

The subject of Fences was taken up by Prof. Kelsey, who has had extensive observation and experience in Osage Orange.

He stated that he had set out two hundred miles this season, and could raise a hedge for about twenty-five cents per rood. That it was the custom once to plant close, six to eight inches apart, and cut back each year, but that practice has not succeeded so well, as some of the plants become crowded too thick, and they die out, leaving gaps. Now he planted eighteen to twenty inches apart and cultivated well, and when strong enough plashed it by cutting close to the ground so as to bend the plants down horizontally with the row, filling up the vacant places, and keeping the hedge trimmed narrow so the plants will have light and air, and not die out. By this method in four or five years you will have a good hedge fence.

Discussion followed by J. P. Johnson, E. Snyder, and J. Troy, Prof. Kelsey, Dr. Stayman, and Mr. Hatch, who all had varied experience, some not very favorable to the Osage Orange.

Dr. Stayman then presented to the Society, from Mr. W. S. Dyer, of Vineland, Mo., some very fine specimens of Ives' Seedling grapes, a variety of apples and apricots, showing that the fruit prospect was good in that section of the country, although the codlin moth was at work amongst the apples.

The meeting was dismissed early to visit the surrounding country, which is very handsome and attractive, showing good farmers and good crops. We never saw as good wheat nor better corn, nor a more inviting country for farming. Groves, orchards and hedges have been generally planted, and all are thrifty except the hedge, which we did not admire. He who would not admire the country

around Highland, and the society, will see but little to admire on this earth.

The nursery of Mr. Snyder is good, extensive, and the best kept we have ever seen in the State, and an ornament to any place. It shows that there must be a refined and tasteful community to sustain such extensive variety of ornamental and greenhouse plants. We could have wished his training of grapes had been equally as tasteful.

EVENING SESSION.

Remarks by Prof. Kelsey on Evergreens, which was interesting and highly instructive; when to plant and how to do it, and the varieties best adapted to the West. He said the Norway Spruce was excellent; also the White Pine and Austrian Pine. The European Larch was highly spoken of, and he succeeded remarkably well this season in transplanting it, which agrees with our own experience.

A short essay was then read by Dr. Stayman, on Horticultural Meteorology. Discussed by Prof. Kelsey, Mr. Bubach, Snyder, Johnson, and Howsley. Music. Adjourned.

MORNING SESSION.—9 A. M.

The meeting was called to order by the President. Music. Prayer by Rev. S. M. Irvin.

Subject: The protection of Orchards, which was participated in by Mr. Wm. Bayless, Troy, Snyder, Bubach, Prof. Mudge, Dr. Stayman, and Dr. Howsley. There was a wide difference of opinion on the subject. The weight of the evidence was that protection from cold was not necessary, that the orchards most exposed to the north were the best, if the locations were high. That if any protection was necessary it should be on the south, and trees planted close produced that effect in some degree.

The subject of growing grapes was then taken up, Mr. Hall leading the way. The discussion was participated in by Snyder, Porrier, and Hatch, Gorden, of White Cloud, (who also presented samples of different varieties of grapes cut from the vineyard) and Dr. Stayman all practical grape growers. It was the opinion of all that Concord was the best for market, and the most profitable. The Ives' Seedling was second. On other varieties there were various opinions. Norton. Virginia, Cynthiana, and Clinton for wine. The Delaware and Catawba uncertain, and not profitable at present; only adapted to certain locations. Music. Adjourned.

AFTERNOON SESSION.—2 P. M.

Music. Report of the committee on the President's address adopted by the Society.

A motion to appoint delegates to attend the American Pomological Convention at Richmond, Virginia, on the 6th, 7th, and 8th of September, 1871, was adopted. Dr. W. M. Howsley, Dr. J. Stayman, and Mr. E. Snyder were appointed.

On motion to devise means to increase the treasury, Messrs. Snyder, Tanner, and Christian were appointed.

Moved to devise means for railroad passes for its official members who may wish to travel over the State to collect horticultural matter, and to request the various railroads to grant time passes to any one of the Executive Board, and such persons as the Board may designate to travel for the above purposes.

Dr. W. M. Howsley, Prof. Mudge, and Hon. G. W. Glick were appointed a committee.

The President was then empowered to act in the matter of exchanging fruits with other States for exhibition at their Horticultural Societies. Music.

An essay was then read by Mr. D. L. Hall, on vegetable gardening. The essay was concise, practical and excellent, and well received.

Discussion on the same by Dr. Stayman, Hall, and C. D. Richardson.

A committee of Dr. J. Stayman, Mr. D. L. Hall, and C. D. Richardson were appointed to report on vegetables at our next meeting.

Col. Park, of Parkville, Mo., was then introduced to the audience, and made a few remarks on fruit growing. He showed its civilizing and reforming tendency. This great valley of the Missouri was the best fruit growing country in America. The ameliorating effect of the warm rains in the early part of the season with the dry and balmy breezes of the maturing season produce large and fair fruit of the highest excellence. No other country can boast of more than what nature has done for us. We should now select the best fruit adapted to our country, and the many good seedlings found in our early planting, have been proven very desirable. He then showed us fine drawings of some of the seedling apples he introduced. Lawver, which is very handsome, which we have before described in the POMOLOGIST. The Ella Park, which he says keeps fifteen months, and General Lyon, longest keeper known, all handsome and desirable varieties originating in his immediate neighborhood. Music. Adjourned.

EVENING SESSION.

At 8 P. M. the session was called to order by the President. Music. The following delegates were appointed to attend the different State Horticultural Meetings:

Iowa, Dr. J. Stayman; Ohio, D. L. Hall; Illinois, Dr. W. M. Howsley; Indiana, E. Snyder; Missouri, all members consider themselves delegates.

Essay by Capt. Christian, on Floriculture. The essay was excellent and very witty, and was listened to by a very large audience of ladies and gentlemen fully able to appreciate its merit.

Mr. E. Snyder was authorized to receive members

to the Society. The following resolution was then adopted:

First, *Resolved*, That the warmest thanks of this Association be tendered to the inhabitants of Highland, for their kind Hospitalities, which we have received at their hands.

Second, *Resolved*, That we. the officers and members of Kansas State Horticultural Society, return our sincere thanks to Mr. and Mrs. McAffe, Miss Pogue, and their pupils, for their kindness in procuring and enlivening us with music, a kindness for which we will ever feel grateful.

Third, *Resolved*, That the thanks of this Society are due, and are hereby tendered to the Missouri Pacific, the Kansas Paeific, St. Joe & Denver, and Atchison & Nebraska Railroads for courtesies extended in the reduction of fares to officers and members attending this meeting.

Valedictory by the President.

Closing remarks by Rev. S. M. Irvin, after which the choir sang "The Golden Stars."

Benediction and dismissal.

The session was well attended throughout by an appreciating audience. The chapel was tastefully decorated with rare and beautiful flowers, while the walls were hung with costly paintings, and above all hung the old flag, the stars and stripes, festooned over the rostrum, which spoke louder than a thousand tongues, "This is free America."

Pruning Trees.

The Gardener's Monthly says it is provoking to see how unworkmanlike some will go about pruning off the large branches of a tree, and thus illustrates the right and wrong in doing such work:

Fig. 1 represents the usual appearance of a cut off branch, caused by cutting on one side, and the weight of the branch drawing over and splitting down the bark. A good workman cuts as shown

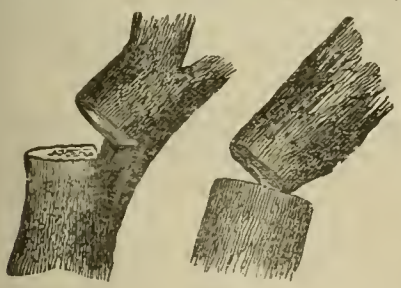


Fig. 1. Fig. 2.

in figure 2. When it falls over it then comes off with a clear smooth surface. After large branches are cut off, the wood should be painted or tarred to keep the wounds from decaying until the bark grows over. Very small branches do not need this, as they cover themselves long betore decay seriously commences.

"Electricity and the Growth of Trees."

By the Associate Editor.

In the May number of the *Pomologist*, Mr. Suel Foster appears to differ with us on the electrical phenomena of plants, and gives us his disbelief in the following quaint style: "A tree grows much as a boy whistles: it whistles itself; so the tree grows."

This method of reasoning reminds us of what we have often heard said, "that a plant grows because it is a way it had." This method of disposing of the subject may suit some persons, but we are doubtful if all are satisfied with it.

While we admit that different influences act upon plants—as light, heat and air, yet we cannot conceive how they grow without electricity. There are two forces inherent in all matter: the one is attraction and the other repulsion. The first has a tendency to build up, condense and solidify, the other to expand, decompose, rarefy and diffuse. The first is positive and the other negative, and both are equal in power and extent; or, in the language of the distinguished philosopher, Auguste Comte, there is an "equivalency between the action and re-action."

In the composition, formation and condensation of matter, the positive or attractive force predominated, and in its decomposition and diffusion, the repelling and negative force, will have the ascendency.

In organization, we have life or vitality, which is also inherent in organized matter, which is more forcibly expressed by Prof. Andre Poey, late director of the Observatory of Havana, in the following language: "The fact that living beings are only formed of cosmical elements leads us to an important view in philosophy, that vital force is *immanent* to organized matter, and inherent to the elements which enter its composition, on the same ground by which gravitation, heat, etc., are inherent."

In organization we have the receiving, directing, and converting forces, which assimilate, develope and build up the different parts of the organism in harmony with each species and variety, but we have also the repelling and destroying force which gets the ascendency in disease and old age.

These two forces are purely electro-magnetic depending upon electricity, it being the only agent known which produces these phenomena, and every experiment tends toward demonstrating these facts.

Therefore, every plant is under two antagonistic forces during its period of existence, and as long as it retains its sappy or circulating state, these forces are held in equilibrium; but as soon as the sap becomes condensed as in the dormant state, drought, or old age, the plants cease to grow because of feeble electrical action.

In confirmation of the electrical action of plants we refer you to the experiments and researches of

Becquerel, Wartmann, Donne, Riess, Pouillet, Buff and Graham. Prof. Andre Poey, on the "Action of electricity on the germination and growth of plants," says: "These experiments were held by Du Petit Thouars, as evidence of the great influence of electricity on vegetation. He held that plants contained two different galvanic arrangements: one acting vertically through the woody fibers, the other horizontally through the medullary rays. To these opposite, independent currents he attributed the principal phenomena of vegetation."

Iron for Pear Trees. A correspondent of the *Rural Messenger* writes as follows:

"I had a very fine pear tree (Flemish Beauty) that became affected, first by blight in one limb, which I removed, and then another and another was affected in the same way, until I had removed a considerable portion of the top of the tree. Early the next spring I resolved to try the application of scrap iron to the roots. I procured my iron, removed the soil from the roots carefully, deposited the iron between them, and replaced the earth. There was no further progress in the blight, the tree continued to grow that season, and the next leaves and blossoms came out vigorously; no black spots appeared on the leaves, and the tree bore finely; and no appearance of disease was seen in the tree afterward. In subsequent conversations with friends I found that some of them had become informed on the same subject, and had tried the remedy with perfect success. Some told me they had procured turning and drilling chips from the machine shops, and had used them, as they thought, with much advahtage to their trees."

Anchor Budding.

The Journal of the Farm says, "some years ago Professor Charles Page, then an examiner in the Patent Office at Washington, and a warm and devoted friend of Horticulture, but now deceased, forwarded to the Philadelphia Florist the cuts which are given below, and which represent what he termed "Anchor Budding," from the resemblance of the form of the incisions to the shape of an anchor. Mr. Page stated that it had its origin in the difficulty he had encountered in entering a bud in the T mode of budding, especially where the shield was very tender.

When the shield is strong, or the wood is not removed from it, if the wings of raised bark on the stock in T budding do not stand out or open sufficiently, the shield of the bud serves as a wedge to pu h them open for its entrance. Tender buds, however, are often ruined in this way, and their insertion is very awkward, especially when we have not the advantage of the foot-stalk of a leaf for a handle. The anchor-buddiug admits the insertion of the most tender buds with the greatest ease, and no risk of injury. Rivers, of England, recommends in his treatise on the Rose, a mode of budding peculiar to hi self. It differs from the common T budding, in making the cross cut oblique to the vertical cut. His object is to prevent the stem from breaking off, which is more likely to happen with a horizontal than an oblique cut. The anchor budding, which consists of two oblique cuts, upwards, mecting the vertical cuts, as in fig. 1,

Fig. 1.

Fig. 2.

combines this with its principal advantage of easy insertion of the bud. It is obvious that the oblique cuts, in conjunction with the vertical cut, leave the upper ends or angles of the wings narrow and yielding; and in consequence, they spring or curl out at once, and make abundance of room for the insertion of the bud. This is well illustrated in fig. 2, and when the angles are very acute, the wings will stand out so far that the bud may almost be dropped in place. It takes a little more time to make two oblique cuts than one cross cut, but it saves time in the end, if the bark of the stock is very thick or the buds are very tender. I have tried this mode satisfactorily, and am inclined to think that the buds take better than in the T mode. This may be due to the extended line for the descending sap surrounding the shield of the bud, and facilitating its union with the stock.

Selling Fruit by Weight.—In Oregon and California most of the small fruits are sold by weight. So it should he everywhere. By measure great injustice is oftеn done to retail purchasers. It is no difficult matter for the retailer to make three pints of strawberries, raspberries, ete., from one legitimate quart.

Pruning. It is said that the donkey first taught the art of pruning the vine; man being merely an imitator, on seeing the effect of cropping the points of the young shoots. It is not always the greatest wisdom to originate, but to turn to good account whatever by thoughtful observation comes within our reach.

Essay on Horticultural Meteorology.

Read Before the Semi-Annual Meeting of the Kansas State Horticultural Society, at Highland, June 7th, 1871.

By the Associate Editor.

Mr. President and fellow members of the Kansas Horticultural Society. It is not our object in this brief essay on Horticultural Meteorology to fully discuss the subject, but to rather call your attention to its magnitude and importance. Meteorology holds such an intimate relation to fruit-growing, that we cannot expect to be successful, except by a proper understanding of the subject. By Meteorology we mean the science of the atmosphere and its various phenomena—particularly the state of the weather.

Heat and cold, wind and storm, humidity and drought, cloudiness and sunshine, also altitude, with the various sudden changes, embrace some of the most important phenomena. The meteorlogical conditions of a country are what constitutes its climate. That climate has an effect on animal life, none will deny, but that it equally affects vegetable life may not be so fully admitted, yet is nevertheless as true. Who has not observed how soon a plant will languish and die when removed from its native home and placed in a different climate under different conditions. To secure the health of plants in different localities, they must be placed under similar conditions congenial to their nature. So true is this, that wherever we find the same meteorological conditions, we find the same species of plants and trees distributed over the globe.

It was the careful study of the conditions of various plants, which led us to understand their geographical distribution, as there is an intimate correlation existing between climate and vegetation.

If we ever expect to be successful in the cultivation of fruit, we must carefully study the peculiarities and characteristics of plants and the climate to which they are naturally adapted. It is not sufficient to study the geography of the country to determine it, for neither latitude, longitude or altitude will give it; but, it requires the exact meteorological conditions of the particular locality, and a congenial soil, adapted to the habits of the plants or trees.

From the foregoing remarks you may see the intricacy, vastness and range of our subject. It does not only consider and determine the climate and condition of the plants of our own district, but embraces that of all others, and also grasps and reveals that of past ages.

Although our subject is comprehensive, yet heat, light and moisture are the most essential elements, they hold such an intimate and important relation to the health and growth of vegetation, so as to require a definite amount at different periods for the plants to perform their various functions at the proper time. So truthfully and forcibly has Lippincott in his *Geography of Plants* said that: "The successful cultivation in northern countries, by artificial means, of plants naturally demanding the high temperature and long seasons of more Southern latitudes do but combine the duration and degree of heat. Nor need it excite our surprise that so well defined are the laws regulating the temperatures necessarily accorded to each variety of plant undergoing these artificial climatic conditions, and so accurately determined are they by practical gardeners, that they have become experts to that degree that they succeed in producing the flower or the matured fruit on a given day.

While there can be no doubt that different plants require different amounts of heat from the time of sprouting to full maturity, though the time through which this may be furnished may be different in different instances, and that a great heat may produce the same effect on plants which is produced by a lower degree operating during a longer term, another principle of much importance must be observed, in order to the successful cultivation of plants under natural or artificial circumstances.

This second principle is that each species requires for each one of its physiological functions a certain minimum of temperature, or as has been well said, each species of vegetation is a kind of thermometer which has its own zero or lowest degree at which it will vegetate. A temperature above a certain minimum of heat is found necessary for germination, another one for chemical modification, and a third for flowering, a fourth for the ripening of seeds, a fifth for the elaboration of the saccharine juices, and a sixth for the developement of aroma or bouquet. A certain intensity of light is also demanded to render green the tissues, and a due supply of humidity in the air and in the soil to furnish a vehicle for the materials of growth and prevent undue desiccation. A plant is thus not only under all the influences which effect the thermometer, but is likewise acted upon as is a hygrometer by humidity and dryness. From the study of special examples among plants, under the combined influences of temperature, light and moisture, a later inquirer believes he has reached most interesting results regarding the limiting effects of these causes towards the north, and on mountain sides. From the point of view taken by this later investigation botanical geography ceases to be a simple accumulation of facts, takes a place among the sciences and assumes to explain by the study of the distribution of living plants the actual conditions of climate, as well as those that prevailed in former ages."

So fully can this be demonstrated that if we take

the mean temperature of the period, a plant commences its growth to its maturity, and multiply it by the length of time, the product will be the exact amount of heat it requires for it to perform its functions. For instance, if we take the Concord grape, which foliates at a mean temperature of 52 degrees, which, at Leavenworth, will be about the 5th of April, and it fully matures about the 15th of August, being 130 days, at a mean temperature for the whole period of 69 degrees, which, in round numbers, will be 9,000 degrees of heat, with an average rain-fall and sunshine, but under excessive moisture, much more heat is required as every additional inch of rain requires about 40 degrees more heat to dissipate the excess of moisture.

In a country of a lower temperature, the grape may mature, but it will require a longer period to do so, and it will not be of as good quality. But in no section will it ripen where the mean temperature of the maturing season falls below 65 degrees, although the vine may grow and be healthy.

It is not alone sufficient that the grape has the proper amount of heat, moisture and sunshine, but they must be in various proportions at the different stages of growth and maturity, for the saccharine principle, high quality and perfection of the grape depends upon the high temperature, diminished humidity and clearness of the maturing season.

In no grape region does the mean temperature fall below 67 degrees from the seeding to maturity, and in the best grape districts and seasons, it ranges from 73 to 81 degrees.

If the statements we have made are correct, (which can be verified by experiments and observations), then meteorology holds a high rank in the order of valuable knowledge to every fruit-grower.

It not only shows the degree and amount of heat and humidity plants require, but also the cold they will endure, and the climate to which they are adapted, as well as pointing out the best locations, and the means of securing the best results.

That if we wish to obviate late spring and early autumn frosts, we must select high elevations in close proximity to deep ravines and valleys or large bodies of water.

That if we wish to mature our fruit early and receive the highest prices, we must choose warm locations well drained.

It shows that high temperature is not alone due to the particular aspect, but that it increases one degree for every 40 feet of perpendicular height to the altitude of 160 feet irrespective of the level of the sea.

That it shows that large belts of timber are no particular protection to fruit-trees from cold, for the highest and most exposed orchards to the north are the most certain and the best for fruit.

That every plant, tree and vine has its climatic conditions, beyond which it will not grow and remain healthy. Some varieties are very much circumscribed, while others appear to be almost unbounded.

These peculiarities of climate, locations and varieties is what constitute horticultural meteorology, to which we have in these hasty remarks given you but a brief synopsis.

If we have but impressed you with its magnitude and importance, our labor will not have been in vain.

Deep Planting of Fruit Trees.

A friend has given us some particulars concerning a large apple orchard—of some 2,300 trees—belonging to a Mr. Scott, of LaFayette Co., Wisconsin. Contrary to the common theory and practice, he believes in and practices deep planting of fruit trees. The location of his orchard is not considered good, nor is the soil—a compact, red clay. He dug the holes for the trees two feet deep, filling in partly before setting, but having the roots at least 15 inches below the surface. Each spring he digs about each tree, throwing out the earth nearly to the original roots, and trims off all fibrous roots above these. In the fall the earth is put back and so left through the winter—serving the purpose, he claims, of mounding fruit trees near the surface. The orchard is said to have done remarkably well—the trees making good growth and being in fine condition, entirely free from bark bursting.—*Western Farmer.*

Remarks. Mr. Scott's practice and experience is precisely the same as that of ours. Out of eight to ten hundred apple trees so deeply set that an ordinary spade thrust square down will not reach the uppermost roots, we have yet to see the first case of bark bursting or blight. We attribute the exemption of our trees from these diseases or whatever else they may be called, solely to deep planting, and nothing else. We do not know of another orchard about us where the trees are set so deep, nor do we know of one of older or of equal age wherein cases of blight or bark bursting have not occurred.

Strawberries. The Boston Cultivator of the 20th of May, says: "Not for many years have strawberries been had here at such low prices so early in the season. The berries are coming forward in large quantities from Norfolk, Va., and some from Delaware, and a good quality can be purchased for 25@35 cents a box."

Fruit in California. Our exchanges from California without exception predict an immense crop of fruit throughout the State. The vineyards everywhere are represented in fine condition, and give promise of a fine vintage. Peaches, plums, cherries, apricots, prunes, pears, oranges, etc., are all alike promising.

The Vineyard.

Vineyard Work for the Month (July).

By the Associate Editor.

There will be but little work to be done this month in the vineyard if the vines have been properly treated last month and previously, except an occasional straggling shoot may require shortening-in, a renewing cane tying up, and a few new suckers removed. This is the month of all others that we should have the ground clean and free from weeds and the vineyard in perfect order, as it is this month that the seeds mature and the saccharine matter is principally formed.

Everything which tends toward a free circulation of air and a high temperature adds to the quality and aroma of your grapes. Therefore your vineyard should be perfectly surface-drained if in a location subject to much rain, as nothing tends so much to diminish the heat, and it requires for every inch of rain absorbed an additional heat of 40 degrees to overcome the diminished temperature.

Your grafts should still be attended to, and the suckers removed. Sometimes they are very slow to start, and require watching patiently.

Keep your cuttings and layers clean. You may also graft green shoots of the grape on current year's growth, in the same manner other grafting is done. If you wish to ship grapes, attend at once to procuring the necessary boxes in good season.

A word more about "No. 13."

By Prof. James Mathews, Iowa Agr'l College.

Ed. Pomologist: A day or two since I received a copy of the "*Grape Culturist*," edited by George Hussman, Esq., of Missouri, which contains an editorial in reference to "No. 13" grape, or rather the one I obtained of Mr. Rogers, for that No. The editor says—"*The illustration you gave is a perfect picture of a good Goethe*," (which means Roger's Hybrid "No. 1,") "*while the entire description also corresponds.*"

As this question is being agitated considerably in connection with my name, it may be proper that I should give a word of explanation as to my agency in the matter.

I have had no doubt for several years that the variety I received from Mr. Rogers for his "No. 13" is not the true one, and have so stated on all occasions. For the mistake I am in no way responsible. I ordered the true No. 13 of Mr. Rogers, together with several numbers, about ten years ago, on his recommendation. Not having the correspondence before me now, I cannot state the precise date. In the same package containing the "No. 13," was also a plant of No. 1. They were put up separately, and each distinctly labeled. I also received a list by letter from him at the same time, corresponding with these marks. Both vines fruited the next year, each having a half dozen or more bunches of very handsome fruit, and resembled each other, but there was one marked and radical difference. The No. 1 was delicious in flavor, the "No. 13" was perfectly insipid and unfit to eat. With this fundamental difference, I never thought of *identity*.

In writing to Mr. Hussman on some other matters that fall, I mentioned the fact of having such a large and handsome grape, which for want of flavor was worthless, and stated to him also, that it was one of Mr. Roger's seedlings. He in reply, I very well remember, advised me not to discard it on that account, saying in substance, that "it sometimes occurred that seedling grapes when first commencing to bear were tasteless, but would after a year or two improve in quality, and rank among the most valuable varieties."

The next year this kind was very much improved in quality, and in the following season I thought, and still think it the best hardy grape I ever tasted. About two years after this, perhaps in the fall of 1864, I first discovered by comparing this fruit with the description of the true No. 13 in Mr. Rogers' catalogue, that mine was not correct. I then had a correspondence with Mr. Rogers on the subject, in which I described the fruit as well as I could, and he replied in substance, that he thought it might be his No. 1. I then made as close a comparison as I could, and called the attention of others to Mr. Rogers' suggestion. Among the number, I recollect that Mr. Kimball, of Oskaloosa, who is a pretty close observer, examined the fruit and vines in my

grounds with care, and decided that they were not identical; and so stated in an article published in the "Oskaloosa *Herald*."

From all these circumstances, together with the suggestions of Mr. Hussman, and the fact that some others of these hybrids are very similar, I thought the probabilities were in favor of this one being a seedling which had not been fruited. I knew there had been a blunder, and supposed it more likely that from his multitude of seedlings in various stages of growth, and which had not fruited, he sent one in mistake, than that he should have forwarded a wrong one from a smaller number of a known and tried variety.

These were my reasonings. They may have been right, or they may have been wrong. I feel no interest in this matter only that the vexed question shall be correctly decided. Whatever it may be, it is in my judgment one of the best grapes I have ever seen, all things considered. Whoever has gotten a vine of it has obtained a prize, whether it be No. 1, "No. 13," or no number. If it is No. 1, I have Mr. Hussman's authority for saying that it is of the highest quality. In his book on "Grapes & Wine" pages 107 and 108, he says:

"*This variety which is also too late in ripening for the East to be much esteemed there, fruited with me last season, and more than fulfilled all the expectations I had of it. It is the best of Mr. Rogers' Hybrids which I have yet tasted; and its productiveness, healthy habit, large berry, and good quality makes it one of the most desirable of all the grapes we raise here, for the table and market.*"

I will say that "No. 13" as I have it, ripens about with Concord, varying in different seasons, from the 10th to the 20th of September. The very wet season of year before last, about the 25th of September. To aid in coming to a very satisfactory conclusion, I will try and send Mr. Hussman and others specimens of the fruit next September. If I cannot be at home then, I will get some one to attend to it.

The Texas Post Oak Grape—Vitis Linæcumii.

By S. B. Buckley, Austin, Texas.

Ed. Pomologist: This grape is very common in the open post oak woods of eastern Texas, extending westwardly sometimes to the central portions of the State. Eastwardly I have seen it on hills near the Red River, at Alexandria, in Louisiana. It is of low habit, generally only from three to four feet high. In but two instances was it from six to eight feet in height, in thousands of specimens which I have seen in every variety of soil. Its greatest height does not probably exceed ten feet. It trails over bushes, or grows without support in tufts, bearing its fruit on stalks near the ground in racemes four to six inches in length, with two shoulders. The fruit ripens about the first of July; skin black or purplish-black, thin; berry about three-fourths of an inch in diameter, of a pleasant acid, yet sometimes the outer pulp is a little acrid; outer pulp purple or reddish-purple; inner pulp yellowish-white; outer pulp about one line thick, slightly acrid; inner pulp acid, and relished by some. The whole is excellent for pies, sauce, and preserves. When canned, the outer pulp coloring the whole, deep red; seeds 2 by 4, ovate, smooth, sub-flattened, and sub-emarginate at the blunt apex.

Leaves very large, reniform cordate, entire or five-lobed, lobes obtuse, crenate-dentate, teeth sub macronate, smooth above, beneath densely cobwebby, tomentose; as are also the petioles and younger branches. Its leaves are larger than any other American species, being from six to ten inches in width and of nearly the same length.

This grape was first described by me in the proceedings of the Academy of Natural Sciences of Philadelphia, in 1861. It has been referred by Dr. Gray to *Vitis labrusca*, but no one who has observed both of these grapes in their native *habitats* would thus refer it. It differs from *V. labrusca* in its low habit, its larger reniform leaves, which are smooth above, while those of *labrusca* are often tomative above. Its racemes are more than twice the length of those of *labrusca*; its berries are adherent to their stem, those of *labrusca* often fall from a slight jar of the tree supporting the vine. The racemes of *labrusca* are very short, and usually of only one short branch. The *labrusca* is a rampant grower, climbing the tallest trees. Surely if our post oak grape were the *labrusca*, it would not be thus dwarfed on the rich lands of Texas. I have not seen the *labrusca* in Texas, but have carefully observed it in its Northern localities, and know it to be very different from our post oak grape.

Summer Pruning the Grape.

It is a rather tiresome job to travel over the same ground so often; to repeat the same idea, the same practices over and over again; yet in a journal like yours, which acquires many new readers all the time, many of whom may be totally unacquainted with these ideas, it may sometimes be necessary to do so. The above subject was recalled to my mind by the essay of Dr. Warder in your issue of May 9th.

It is well known that the practice of the very early and very short summer pruning or "stopping" of the fruit bearing branches originated with Mr. Wm. Poeschel, of this place, and was first made public by me. At that time, or soon after, I had to fight strongly for this idea with our Ohio friends, in the columns of the "Cincinnatus," then published in Cincinnati. I am glad to see that it has since

gained in favor and has been adopted by them, as it shows that they are still "open to conviction," as I hope we all are. The first step or process in summer pruning, stopping, or pinching the fruit bearing shoot just beyond the last bunch of grapes, has been well described by Dr. Warder. He does not, however, lay so much stress upon the second and third pinching,—that is, stopping and pinching the laterals which appear from the dormant buds in the axils of the leaves,—and as this may reach your readers just in time for the operation, it may be of use to them to say a few words about it.

The pinching of the leading shoot of the fruit bearing branches has not alone the tendency to more rapidly develop the embryo fruit, but also to force out the laterals into stronger growth. About a week after the first pinching these will have developed several leaves, and should all be pinched above the first leaf, which leaf will now rapidly develop, and by its position just opposite the young bunch will afford the most perfect shade and protection to it, and at the same time will serve as the most natural elaborator and conductor of sap. Should these laterals start out again, as they will generally do, they may be stopped again, leaving one leaf the young growth. This is the last operation, and is here finished by about the middle of June, after which time they are left to grow unchecked. Your readers will thus perceive, that instead of robbing the plant of its leaves, as by the common old process of summer slaughtering, the careful operator will by this process "make three leaves grow where but one was before," and should certainly be called as great a benefactor, as the one who makes two blades of grass grow where only one grew before, as the leaves are the lungs of the plant. Moreover, these leaves are just where they should be, and will remain fresh and green, the most perfect shade for the young fruit against the scorching sun of August, when the first leaves have already fallen off.

To sum up, summer pruning has a three-fold object, which the operator should keep constantly in view. First, to remove all superfluous growth, which will absorb and rob the vine of its strength. Therefore we will not allow any more canes to grow unchecked than are necessary to produce bearing wood for the next season, and rub off all blind and superfluous shoots. Secondly, to develop the fruit to its greatest perfection, and those who will carefully watch this process will be astonished how much this is aided by an early and timely pinching; and thirdly, the development of the most perfect growth, to bear fruit the next season. To do this, we should grow no more young shoots than are needed for the purpose; should grow these in the right place and in the right shape. In fact, summer pruning is but the first step, but the most important one, of which fall pruning is the continuation, for how can the operator prune well in the fall if he has not the vine in the proper shape to do it? The pinching of the shoots destined for bearing fruit next year has a tendency to force out the laterals into stronger growth, and is advisable with nearly all of our strong growing kinds, such as Concord, Norton's, Herbemont, Cunningham, Taylor, etc., and I have even practiced it with good success upon the Catawba.

I would here again remark that the vine dresser must be a thinking and reasoning being, not a mere machine. In performing every operation, he must ask himself the why and wherefore, and he will soon find that practice makes perfect.—*Geo. Hussman, in Journal of Agriculture.*

Effects of Sulphur in Wine.

Mr. Wm. J. Flagg, in his Hand Book of the Sulphur Cure as applicable to the Vine disease in America, thus speaks of its effects in the wine made from sulphured fruit:

A bad flavor is sometimes communicated to wine from the remains of sulphur on the grapes, and serious objections to the use of the remedy were at one time raised on this account. This taste it has, however, been found easy to get rid of by drawing off. If one operation does not suffice, a second in the manner described below will be sure to succeed.

Rinse carefully your empty cask, first with cold and then with warm water, then again with cold; for every forty gallons it will hold, pour in a quart of clean water, and leave it there. Burn within the cask, for every forty gallons it will hold, one square inch of rag or wick incrusted with sulphur by being dipped in it while melted; close the bung tightly, and roll and shake the cask to let the water within it absorb well the vapors of sulphurous acid produced by the burning. Into the cask thus prepared draw your wine, doing this by means of buckets, and not by any of the modes contrived to exclude the air, since contact with it helps to disinfect the wine.

But be careful to leave all lees behind; therefore do not tip the cask. The thicker wine remaining with the lees must be settled by putting it in a smaller vessel, and then drawing off by itself in the same way as the other. Any portion of the lees carried into the fresh cask under the influence of a slight subsequent fermentation will again form sulphureted hydrogen, which constitutes the bad taste in question.

The above is from De la Vergne's "Practical Instructions."

This sulphureted hydrogen decomposes when brought in contact with the sulphurous acid produced by burning the sulphur coated rag or wick, and thus the objectionable flavor passes off. But it

will be slight enough to go away in the ordinary drawing off which must necessarily be performed for other purposes, unless sulphur has been applied to the vines late in the season, and in needlessly large quantities, and no heavy rain has come to wash it off, nor sufficient heat intervened to vaporize it away.

But the slightest inconvenience of this sulphur flavor, so easily got rid of, is an inconsiderable evil compared with what r sults when, in absence of the proper remedy, the mildew, or its remains, passes into the wine. For which reason it is always well to sulphur vines whenever any considerable attack of the disease occurs late in the season, even though it come too late to injure the fruit; for by fastening on such parts of the fruit-stems as yet remain green, it can maintain a foothold until vintage, and so find entrance into the press or vat.

M. Mares thinks the small quantity of sulphureted gas that will ordinarily be found in the new wine is valuable to preserve it, and thinks, too, the wine made of sulphured grapes is more even in quality, has a brighter color—very important in red wine—and keeps better than other wine; while De la Vergne says the time will soon come when those who buy wine of the producer will be glad to hear him say, "My vines were thoroughly sulphured;" and we all know that in commerce it has long been used to fumigate wine casks, without complaint being made of any bad effect resulting.

Grapes on Trees—Grape Rot—Cause.

In the Cincinnati Horticultural Society, Mr. Tompson stated that he lets his grape vines run at random over trees, and that he has great success in this plan.

Now, this may be new to the grape-growers about Cincinnati, but it has been my practice for the last twenty-five years to let them run just where they like and climb higher and more higher still, if they please; and I always have an abundant yield of grapes, notwithstanding Dr. Warder's opinion to the contrary.

I must confess that I feel considerably elated when I contrast my vines with those on the vine-clad hills around Cincinnati. Whilst on one of my vines there will be thousands of bunches of grapes without five minute's labor in a year, those little pipe stem vines, tied to stakes, and requiring constant care, only produce a few bunches.

Now for the theory. Your little dwarfed and spindling vines can have only a corresponding amount of roots, and, consequently, a corresponding amount of fruit. It is nonsense to talk of vines overbearing for two or three years, and then not bear at all, unless they are cut and trimmed. Experience proves the contrary.

If any one does not agree with me, he is welcome to his theories, whilst I can and do have an abundance of grapes. I have used sulphur more than twenty years, and with benefit, to prevent rot.

Rot is not caused by a fungus, as some suppose, but is caused by some insect puncturing the grapes whether to deposit their eggs or not I don't know, but presume it is for that purpose; yet I never succeeded in finding any eggs or worms in a rotted grape. Well, says one, how do you know they have been stung by an insect? Because I have seen the puncture and a jet of juice which had oozed out. Whenever you find a grape that has been stung, tie a string to it, (for a mark so as to find it), and watch the result. After a longer or shorter period it will turn whitish around the place where stung, and continue to spread until the whole grape is rotted. If at any time with a sharp knife you cut out the black spot, the remainder of the grape will grow and ripen, thus providing there is no defect in the vine.

Upon this discovery was based the sulphur remedy for the rot, being distasteful to all the insect tribe. Fumigations with sulphur in the evening is better than the dust, as I think the depredators work at night. I have no certain knowledge of the enemy, but always find a few large yellow bugs on the vines when the grapes are rotting—they are very shy fellows. Whether friend or foe, I know not, but kill him when I find him.—*Cor. Cincinnati Gazette.*

Preparation of Grape Cuttings.

In preparing cuttings, the upper end should always be cut off a very little above a good strong bud, so that the sap in its natural flow upward will feed this bud and cause it to make a strong and vigorous growth. It is also better that the wood extend some distance below the lower bud, as the end will sooner heal over and throw out roots, and thus the sooner the cutting will become a vine containing all the parts and performing all the functions of a complete plant.

The cutting should be set in a slanting position at an angle, say of about forty-five degrees and, should be covered so that the upper end will be entirely out of sight, say one inch below the surface. If planted erect, the roots will only start at the extreme lower end, while if slanted, roots will grow at several different points, giving the vine much more vitality and force.

Remarks.—We copy the above paragraphs from an article in the *Rural Pacific Press* on "Planting Vineyards," and we do so for the purpose of pointing out some of its fallacies. This cutting off close to the bud at the upper end of the cutting is not necessary but absolutely injurious, unless covered over with the ground to keep it moist, for the bud has a tendency to dry up before it starts. Cutting some distance below the bud at the lower end is not necessary, as the roots are formed at the nodes or joints instead of at a distance from them as

above stated. The soaking of cuttings has a tendency to make them root sooner upon the principle of decaying the bark, but the removing of the bark before planting at the lower joint or node produces the same result and more expediously.

Setting cuttings upright does not hinder the formation of roots at the upper nodes but has rather a tendency to make them form there as the soil is not so cold as below. Roots do not form but at the joints unless under extraordinary circumstances. The object in setting cuttings at an angle is to place the nodes at a more equal level than they would be if set perpendicular to give all the joints an equal chance of rooting.

What Becomes of the Sulphur used upon the Grape Vine.

This question has been answered by Prof. C. Wideman, in the New York *Journal of Applied Chemistry*, who says that recent analysis of the soil taken from the foot of vines which have been treated with powdered sulphur, shows that the sulphur so employed, after performing its office of warding off disease to the leaves, falls to the ground, and unites with the lime there to form sulphate of lime —gypsum—the substance now so highly recommended for its fertilizing or rather irrigating qualities. This sulphate of lime has been found at a depth of fully three feet from the surface, and under circumstances where no other probable origin can be thought of. The transformation is thought to take place within a period of one month from the time of putting the sulphur on the vines. This important fertilizing result affords an additional reason for the use of sulphur on the the vines, and wherever else it may be of use in destroying insects or disease. The formation of the sulphate of lime is found to be more active in well manured vineyards than in those free from decaying organic matter.

Diseases of the Grape.

The Commissioner of Agriculture at Washington has undertaken the investigation of the diseases of the grape vine. To obtain all possible assistance and information in investigating the subject, the attention of practical, observing grape growers throughout the country is called to the following schedule of questions:

1. When was the vineyard planted?
2. What is the kind of grape?
3. Where was the stock obtained?
4. How large is the vineyard?
5. How far apart are the vines set?
6. What is the character of the soil?
7. What is the drainage?
8. What was the crop the first bearing year, and for succeeding years to the present?
9. In what year did disease first appear on the vines? Was the distruction that year due to mildew or to rot?
10. In what subsequent years was mildew most hurtful?
11. In what years was rot most hurtful?
12. What means have been tried in this vineyard to prevent or cure the disease? if so, please give results?
13. What insects have been particularly injurious, and what means have been used to prevent or destroy them?

Replies to these questions should be addressed to the Commissioner of Agriculture, with name, post-office, county and state plainly written.

Miscellaneous.

Potatoes and Potato Bugs—Experiments.

By Prof. C. E. Bessey, State Ag. College.

Ed. Pomologist:—Hitherto I have been too busy to write—being engaged in a difficult warfare with the weeds and insects in the garden—and I am compelled to say that seldom have I seen more of either than I have this season. I have not attempted an enumeration of either, but think I could name, or at least point out such a number as might well make Iowa gardeners stand aghast.

I have just been looking over an experiment I have in progress for the purpose of testing the more prominent varieties of potatoes as to their capability of withstanding the ravages of the potato beetle. Have about eighty varieties—planted in contiguous rows—and am allowing the beetles to have it all their own way. The consequence will be, to use a Darwinian phrase, "The survival of the fittest." So far, several varieties have entirely succumbed to the attacks of their enemy, while others have been badly injured, and others again have been but little hurt.

The varieties entirely cut off are, Early Loudon, Six Weeks and Black Kidney—and these were not all at one side of the ground, nor all together, as might be supposed—but on the contrary, they were in rows at a considerable distance from one another.

Below I give a table of the prominent varieties in the order of their freedom from beetles. No. 1 being best, and No. 11 poorest:

1. The peachblow varieties, nearly free.
2. Climax, nearly free.
3. The Chili varieties, injury slight.
4. Early Rose, somewhat injured.
5. Bresee's Prolific, somewhat injured.
6. Early Mohawk, tops hurt considerably.
7. Harrison tops hurt considerably.
8. Peerless, tops hurt considerably.
9. Excelsior, tops badly injured.
10. Early Shaw, tops badly injured.
11. King of Earlies, very badly injured.

By the Peachblow varieties I mean the Peachblow, White Peachblow, White-eyed Peachblow, and the closely allied White Apple. I have included them under the same head, as their habit of growth is vary similar, and their freedom from beetles about equal.

The Chili varieties include White Chili, Garnet Chili and Chili No. 2. Last year, at the close of the

season, Chili No. 2. showed the best, but as you see, it now stands as third in the list. I do not think these varieties will retain their relative positions throughout the season, and will, therefore ask your readers not to be too hasty in deciding for, or against any particular variety. This lot of potatoes has been dedicated to the "bugs," for the express purpose of allowing them to decide (if they will) which ones they like, and which ones they propose not to eat. I fear that while they will eat of the most savory varieties first, they will not scruple to attack and destroy any other when the better food runs short.

I will apprise your readers of the progress of the experiment from time to time during the remainder of the season.

Fruit—Protection of Vines and Trees against Frost and Mice.

By Peter M. Gideon, Excelsior, Minn.

Ed. Pomologist & Gardener.—Health has prevented an earlier notice of the fruit prospects in central Minnesota.

Last fall trees went into winter quarters in fine condition, but the ground froze harder than usual before the fall of snow, which done damage to all tender rooted trees that had not been timely mulched, and on grape vines covered with soil instead of hay or straw. Marsh hay is the best covering that can be had for grape vines, have never had root or vine to damage under a covering of two or three inches of it. And, as to danger from mice, we treat them on strychnine, in the following manner:

In line of each trellis I put a small piece of board, on it set a shallow dish or pan with about a table spoonfull of dry corn meal, with a little powdered strychnine sprinkled over it; over that place a tight box, so as to keep the meal dry; for the mice won't eat it after it is wet. Then over your box lay your vines and covering, and all is safe for the winter—one to each trellis not exceeding 50 yards is sufficient. And to rid mice from orchards, we set some 30 such baits about the first of October, covering each box with an armful of corn fodder; having timely provided these precautions, not one tree on our premises received damage, though three acres of one orchard was in grass and not mowed. But pardon the digression after the mice, and we will get back to the season and prospects.

The spring has been alternate extremes of heat and cold, with rather more than a usual fall of rain; and though rather late in starting, vegetation is very forward for the month of June—the strawberry crop well nigh ripened off, the cherries ripe, the currants fast turning, the grapes set well, the bunches unusually large, the apple crop a full average. Pears for the first time with us have fruited, they are the Flemish beauty—so in a few weeks more we can have the pleasure of eating Minnesota grown pears.

As to the relative hardiness of the different varieties of fruit, I have nothing to add this time, the winter being so congenial that all came through in fine condition, except unmulched, tender rooted trees of our neighbors, but for which we make timely provision.

The great majority of root grafted apple and pear trees are on tender roots, that no matter what the top is, the root will die out if not kept well mulched every winter, and that mulch applied before the first freeze in fall; as it is the first freeze whilst the sap is yet up. The mulch prevents the sudden freezing of the ground at the collar, and thus allows the decent of sap to the roots, and thereby prepares them the better to withstand the subsequent hard freezing; and more—prevents the bursting of the bark at the collar.

Forests a Remedy For Drought.

In an address before the Livingston Co., Mich., Agricultural Society, Prof. R. C. Redzie, of the Michigan Agricultural College, discussed the advantages of forests, a subject now attracting much attention. His remarks as to the influence of forests on drought are as follows:

Some may ask why forests are necessary. Is not any portion left in forest so much unproductive capital? Does not a wise economy demand that these unproductive forests should be cleared up as soon as the owner can command the means, and the whole country be made productive? These are important questions, and should receive answers. If trees are of no service in the economy of nature except to furnish fuel and timber, then any surplus beyond these wants is a useless drawback on the productiveness of any country; "cut it down: why cumbereth it the ground."

But there are other reasons why forests should be spared, and one is, their control over extreme fluctuations in the rain-fall of any region. The researches of modern science; accurate and careful observation, as well as the history of the past, show that a country abounding in forests is more moist, has a more copious and equal rain-fall, abounds more in springs and streams, and as a consequence of all these, is more exempt from great and sudden fluctuations in temperature, from early frosts in the fall.

Thus Egypt, from the earliest periods of history, has been spoken of as a rainless region; but since Mahomet Ali has made his immense plantations of trees, showers have become frequent. The controlling influence of forests over rain-fall is also shown by the fact that countries once supplied with forests, and having abundant rains and immunity

from frost, their forests having been destroyed, have been scourged by drouth and frost till the forests were restored, when they once more become fruitful; or, if the inhabitants would not restore their protecting forests, the stern hand of famine threatened to wipe out a race that would not reverence the order of nature.

Thus the Cape de Verde Islands, so named from their greenness, have been stripped of their forests by their improvident inhabitants, since which time they suffer terribly from periodical drouths, sometimes no rain falling for three years at a time, and 30,000 inhabitants, or one-third of the population, have perished. Thus famine cuts down the inhabitants as pitilessly as they cut down the protecting trees. It has been proposed to re-plant forests, yet little has been done towards restoration, and it is probable that the entire race may be cut off, to be replaced by those who have learned that the "tree of the field is man's life."

More about Cranberry Culture.

In the transactions of the Middlesex (Mass.) Agricultural Society for 1855, a paper on cranberry culture appears from Addison Flint, of North Reading. Mr. Flint details his practical experience which will be found of special value to new beginners in the business, as his mode of culture embraces the planting of the seeds, the transplanting of the vines, and the cultivation of the wild plants spontaneously growing in his swamp. He first erected a dam across his grounds, by which he raised a pond, and left it in that State for three years. In August, 1840, he let off the water, and the October following burned over the swamp preparatory to its cultivation. After letting off the water he found a few native vines, and these he let remain as they stood. He planted about half an acre of the swamp in October, the same fall, with the seed, or rather the cranberries, crushing each berry between his thumb and finger, and placing it just under the mud, one in a hill, three feet and a half apart. The following spring he sowed several bushels broadcast. On the part thus planted and sowed, but few vines appeared first, and it was not till 1853, or six years afterward that they began to produce fruit. In the remainder of the swamp Mr. F. set plants from a neighboring swamp, cut up with a sharp hoe or shovel, in bunches about the size of a quart measure, placing them in hills, three and a half feet apart. The result was, in 1852, he gathered about one hundred bushels, sixty from the transplanted vines, and forty from the native plants. In 1855 he gathered fifty barrels, and "*the increase was principally from the transplanted vines.*"

☞ Look out for the summer tent caterpillar. Roll up the web at once and destroy it.

Comparison of Climates.—Interesting Facts in Fruit Culture.

In the Report of the Secretary of the Sate Agricultural Society of Iowa, for 1870, we find the following statement:

"The early part of the season, May, June, and July is noticeable for a remarkable drouth which literally burned up the pastures and dissipated the hopes of all, in apples and pears and the smaller fruits. Never was there a greater luxuriance of bloom to be followed by a general failure of fruits. The drouth greatly diminished the hay crop, but it is of surpassing excellence."

Notwithstanding this statement, and which, from our recollection, was confirmed by the facts, as reported by the press of that State at the time; the same report gives a table of rain fall during those same months, from which we learn that in the month of May, for that year, the rain fall was 3.18 inches, for June it was 1.07 inches, and for July 3.72 inches; the aggregate for the three months being 7.97, or very nearly eight inches.

From the same table we learn that the rain fall in that State, from January to September of that year was 26.27 inches. And yet the drouth was so severe as to destroy all the fruit crop and literally to burn up the pastures.

In California, this year, the whole rain fall in all the central portion of the State up to this time, has not reached eight inches; and yet our fruit crop, including apples, pears, and all other kinds of fruit bids fair to be one of the most abundant and the most excellent we have ever had, and this too in the dryest portion of our State, and upon our dryest lands.

Here is a fact we would like to have some of our scientific scholars explain. It may be said that our fruit is fed and sustained in its growth from the atmosphere. This is undoubtedly true to a great extent; but then it must be remembered that our atmosphere is much dryer than that of Iowa, and the question arises, why is not the fruit in Iowa fed and sustained in its growth, as well as in California? We would like some of our meteorologists to explain this climatic problem.

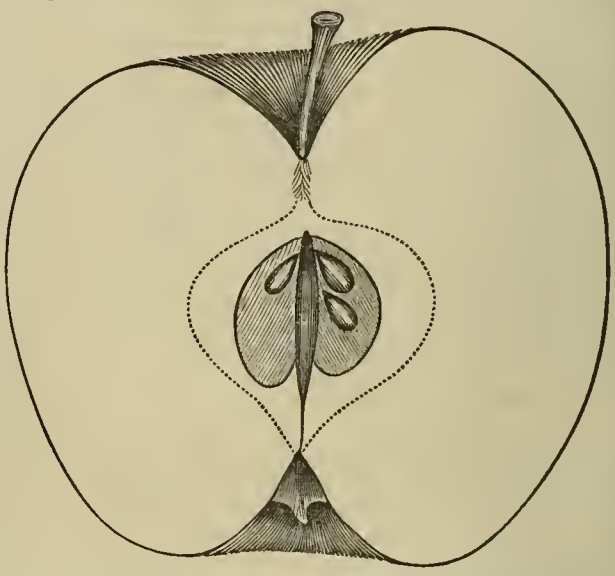
The same peculiarity is noticeable in the growth and maturity of all our agricultural products. Our grain of all kinds matures and comes to the greatest perfection with a much less amount of rain than is necessary to secure a much less perfect crop in the Atlantic States. Why is it?—*Pacific Rural Press.*

Keeping Flowers Fresh. It is said that a few iron nails placed in a vase with flowers will keep the water sweet and the flowers fresh. This result arises from the fact that as fast as the sulphur is eliminated from the plants, it is taken up by the iron, instead of entering into other combinations, and forming deleterious and offensive masses.

American Summer Pearmain.

By the Associate Editor.

Fruit medium to average; weight six to eight ounces; form oblong conic, oblique; skin yellowish green, mixed with broken stripes of scarlet and purplish red; dots small, numerous, elevated, giving a rough surface and somewhat the appearance of bloom; stem long and slender; cavity medium, regular, green or russeted; eye large, nearly closed; basin deep, rouud, regular; core small, roundish, closed; carpels small; seeds small, short, plump, light brown; flesh yellow, exceedingly crisp and tender, fine grained, juicy, aromatic, mild sub-acid, nearly sweet, delicious; quality the very best; use table and market. Season August and September. Tree stocky, hardy, very healthy, handsome, slow grower; blight and winter proof, tolerably early bearer, and productive. No orchard can be complete without this apple. Brings the very highest price in market.



Deep Holes for Trees. A correspondent of the Southern Gardener does not approve of deep holes for setting trees. "I am strongly inclined to believe why many of our trees die, is the hole digging plan of planting them. This, too, may be the cause of much of the apple rot in our country. Why not plant largely, and have apples and cider through the winter? What's to hinder? Why not have large melting pears all summer, fall and winter? There is nothing to hinder our enterprising people of the country, but to turn their minds to it.

Time for Setting Currant Cuttings.

Ed. Pomologist & Gardener.—But very few who plant currant cuttings do it at the right season of the year. It is usually done in the spring, when in fact it should be done in the fall. I have had a good deal of experience in propagating currants. I always plant my currant cuttings in the fall as soon as the leaves fall off. They will make durable roots two to four inches long the same fall while the buds remain dormant. They will make double the growth the next season if set in the fall, that they will if not set till spring. They should be set in ground that will not heave them out by the effects of frost, and should be covered just before winter sets in with coarse litter. Remove the covering early in the spring and examine the cuttings to see if any of them hove, and if so press them down again. Should they heave up an inch or more, if well pressed down they will still start and make better growth than cuttings set in the spring. In either case, however, the cuttings should always be made in the fall. Robert Scott.

La Porte, Ind.

Coloring of Fruit.—The Gardeners' Monthly says: "Fine rich color is always esteemed as one of the criterions whereby to judge the excellence of a fruit. Sun light is of first importance; but it is not generally known that this is injurious when in excess. In a dry atmosphere, with great sun heat, where the evaporation process goes on faster than the secretive principle, what should become a rich blush in a fruit is changed to a sickly yellow; and the rich jet black of a grape becomes a foxy red. Some grape growers of eminence, in view of the facts, shade their vineries during the coloring process; but others, instead, keep the atmosphere as clear and moist as possible.

Salt for Pear Blight.—We see it stated that several nurserymen in Geneva, N. Y., are using salt freely in their Pear Nurseries, at from 200 to 400 lbs. per acre yearly, and say that it has a wholesome tendency to correct the tendency to blight; also to prevent it for the future. Certain it is that where used there have been less indications of its prevalence than in other parts where it is not used.

The Vegetable and Flower Garden.

Garden Work for July.

By the Associate Editor.

The principal work to be done this month is to keep the weeds down and the ground clean and loose, frequent stirring of the soil is indispensible if we wish to raise fine and good vegetables.

Beets may still be sown the first of the month, we prefer the early turnip varieties for late sowing.

Rutabagas may also be sown, and the last of the month we usually sow turnip seed.

Onion sets should be taken off and stored away to dry and the old onions taken up and divided for transplanting.

Cabbages may still be planted out if good plants are used on rich ground in hope of making heads if well cultivated.

We may sow Winter Redishes this month, the Black Spanish and Chinese Rose colored are the best.

Bunch Beans may be planted for a sucession, and Celery also transplanted.

The ground should always be in good moist order and fresh, to succeed in planting seed or transplanting in hot weather which cannot be to forcibly impressed on the gardener.

The Vegetable Garden.

By W. H. W., Connecticut.

Ed. Pomologist and Gardener. Having in former numbers treated of the garden generally, its aspect and preparation, we now come to Fencing. We have all along, and shall in future numbers suppose that the garden is about to be made in some new location, and to be made an improvement on farmers' gardens in general. The garden needs fencing for several reasons :—For protection against two-legged and four-legged animals; shelter and protection against cold winds, etc. So long as cattle trave the street without being led or similarly restrained, and boys allowed to go from place to place, a garden unprotected by fence presents a temptation that may be considered irresistable. A fence then, of some kind, is needed as information that the enclosure is *private property*, and that the owner thinks it of sufficient value to afford it a slight protection.

What this fence shall be constructed of must be a matter governed by circumstances. In some localities high stone walls will be most available, others evergreen or other hedges, still others high, tight board fences will be found best; and we would not, like some, condemn a neat picket fence, as in some places it may be very appropriate, answering the purposes of protection against a variety of intruders. But oftener a very great advantage is gained where there is no natural protection of hills, woods, etc., to have some wind break to shelter the garden from cold winds and storms; this may be accomplished by a good hedge, belts of evergreen trees, high close fences, or buildings.

A live fence in the majority of instances will be found the very best, yet a fence of this kind cannot be made and kept so as to afford all the requirements, without considerable attention, especially in starting it; after it is once formed, to the desired height, the care is mainly to keep it properly shorn, which will take but little time and is easily done, when one once learns how. It is not our province to go into details of hedge setting and culture, or fence building, but rather give suggestions more generally applicable to our subject. A variety of plants are adapted and used for live fences, some best adapted to our climate and locality, some to another, so that where one is unsuitable another may be adaptable.

Remarks. The foregoing is the continuation of a series of articles on the garden, commenced in the *Western Gardener*.

Susqueco Raspberry.—Mr. Fuller says, in his notes on Small Fruits for 1870, "it is a dwarf-growing variety, resembling the Pearl, a native red raspberry, cultivated to some extent by small fruit growers in the vicinity of Philadelphia. It is one of the very best of our native sorts, and by keeping the plants well mulched in summer, they will continue in fruit for at least two months. Like all our native red raspberries, it produces a great many suckers, but the canes are perfectly hardy, and generally quite productive."

Conover's Colossal Asparagus.

It appears to be a question with some whether or not the size of Conover's Colossal Asparagus is not due to extra culture and care, rather than anything new in the line of variety. We have grown the old, or common sort for some years. Hearing so much said of the superiority of the Colossal, we were induced last spring to make a bed of it with yearling plants. With the two beds under our eye, and with like culture, we shall be able in the course of a year or two, to settle in our own mind the relative merits of the two. If the so-called Colossal should turn out to be a re-vamp of some old sort, like the Mexican strawberry, Sauregan raspberry, and other like horticultural dodges, the sooner the public are made aware of the deception the better, that purchasers may no longer be bled in paying two prices for seed and plants. At a late meeting of the N. Y. Farmer's Club a talk was had upon this mooted question, but as will be seen from what was said, opinions pro and con, were left pretty well balanced.

"James Smith, Pittsford, N. Y., bought, two years ago, fifty cents worth of Colossal Asparagus seed which he transplanted according to Dr. Bruen's directions in the spring of 1870. He is now cutting from it for the table, liberally, every day. He urges that Mr. Bruen's advice that a farmer grow his own roots from seed is good unless he can get them very near at hand. He failed twice by purchasing roots. Mr. Bruen said he had not found Conover's Colossal to do any better nor produce any larger growth than a bed of his common sort. Dr. Trimble said that it should not be judged by a single year's trial. So also said Mr. Lyman, who found that the first year's growth was not strong, but it thereafter grew stronger. Mr. Fuller said it was a question with him whether the size of the Colossal was due to the variety or to the culture. The Bostonians beat the Colossal last year, as to seize, with the old sort. He could see no difference in the leaves of the two varieties, though he is not prepared to say they are identical. But he should like to know whether the difference is not entirely due to mode of culture.

The Art of Making Salad.

In every country salad is composed of nearly the same ingredients. Many vegetables contain potash, and when they can be eaten raw they are excellent antiscorbutic food. Boiling them would remove the potash; thus their principal virtue would be lost. The Romans ate salad freely, mixed with olive oil. The general ingredients of a salad are well known. In spring and summer, lettuce, mustard, and cress, water cress, and radishes form the staple; in the autumn, endive and cabbage lettuce predominate. Nothing spoils a salad so much, both in appearance and flavor, as cutting it up too fine. Every atom should maintain its individuality. Radishes cannot be cut too fine, but the slices should be in rings, and not in dice shape. Onions must remain a matter of taste; but not so as regards mint. Every salad should contain from three to six leaves of young mint, as it greatly assists in digestion. No salad can be properly made without one or two hard boiled eggs, because the yolks are necessary to blend the oil.

The mixture should be made thus—Boil two eggs quite hard; when done take them out of the saucepan and put them in cold water. This causes the eggs to shrink, and the shells can easily be removed without disfiguring the white. Cut each egg into three parts and remove the yolk into the salad bowl; cut the white into fine rings, some of the best of which should be preserved to place on top of the salad when served. With a wood or silver spoon break up the yolk in the salad bowl, and add one table spoonful of oil; these ingredients rub together, and they will blend; then add at least three tablespoonfuls more of oil, and again rub all together; now add a teaspoonful of moist sugar, again rub, and all will blend.

Now add gradually, a little at a time, the vinegar, in quantity about twice as much as the oil used; lastly put in pepper, salt, and ready-mixed mustard, the latter but little; but on no account use mustard that has not been previously mixed with water. A little taragons vinegar, used scantily, improves every salad. It is very essential to mix the ingredients in the order laid out as above. When this is carefully done, an excellent salad will be the result—soft, yet aromatic; creamy, but not greasy.

There are as true chemical reasons for mixing yolk of egg with oil, as there are for mixing flour-of-mustard with water and not vinegar; but this is not the place for examining them—the fact stated must be accepted. It is the general want of knowledge of how to blend the oil, that causes the remark "I am very fond of salad, but I'll not take any oil, thank you." Of course, served up as it frequently is, all floating and greasy, few things can be more objectionable, unless it be that rancid potion sold in ring bottles in shops, under the name of "Salad Cream." Avoid this. Beet-root, as a staple to a salad, is not used sufficiently in America. At least half a good sized beet should be cut up with every salad. It is digestable, nutritious, and in general favor.—*Hour Glass.*

Copperas for Currant Worms.—It is said that a solution made by dissolving one pound of copperas in sixteen gallons of water and sprinkled upon the bushes until thoroughly saturated will most effectually destroy the currant worm. This is a cheap, simple and safe method, and if a remedy, is preferable to anything else we have seen recommended.

Entomology.

Dr. S. H. Kridelbaugh, Editor, Clarinda, Iowa.

A New Pest in the Orchard.

Dr. Kridelbaugh.—I write to tell you of a new pest of the orchard, (new to me,) which has made its appearance here within the past few days. I was led to their discovery by seeing the young spurs of new wood hanging withered from the limbs of my apple trees, in a newly planted orchard, specimens of which I send by mail with this. They do not eat the leaves, but eat the bark and new wood, working transversely through it. They are as easily caught as the potato bug, and show no inclination to fly. I find them either at work or resting quietly at the base of the twigs. The specimens I sent are, I think, male and female—the female being the largest. They are quite numerous, and unless hunted off every day and destroyed would probably kill all my young trees.

J. C. Finlayson.

Eldora, Iowa, May 20, 1871.

Remarks.—The beetles you send are the New York Weevil—*Ithycerus noveboracensis*, of Forster, who named it about one hundred years ago. The generic name Ithycerus, signifies straight-horn; having reference to its straight antennæ, while its specific name noveboracensis means "of New York, referring doubtlessly to the locality in which it was first discovered.

Apple appears to be its preferable food, although it attacks the pear, plum, peach and cherry. It feeds actively at night and appears sluggish during the day.

Before the buds put forth it destroys them, later in the season it forages on the tender shoots from the old wood and the soft bark at the base of the buds, thus playing sad havoc in orchards.

The I. noveboraensis is among the largest of the snout-beetles, of ash-gray color marked with black, of which the annexed Figures of male and female will give the general reader a good idea. The large figure is a dorsal view of the female, and the small one a lateral view of the male, of natural life size, engraved from photographs by S. Hutchings, Clarinda, Iowa.

It is thought by naturalists that this species of the curculio family do not breed in fruit trees, but in the tender branches of the bur oak. Its larva is of a pale yellow color with a tawny head, and is known to burrough in the bark of the bur oak, in which the female very ingeniously carves a crevice, and deposits her eggs. Its complete transformations are not definitely known.

The best way to get rid of them is to clear the rubbish away from under the trees that the insects may be readily seen. Jar the tree and they will fall down, and may be picked up and killed, as is the custom with the plum curculio.

An Unknown Visitor.

Dr. Kridlebaugh.—I send a specimen of a bug that is making sad work with my brother's young apple trees that were set out this spring; they eat the leaf as fast as it appears or where there is no leaf eat out the bud, and sometimes eat the bark. So far he has failed to stop them. Soft soap applied to the trees makes no difference with their work.

The trees are set on new land only one crop, is hazel and burr oak, rather a clay soil. This bug beats me; what is it? They have killed many of his trees. I am half a mile from him, have quite a lot of trees set this spring, have not seen any of the bugs on mine.

The show for fruit is the best here I ever saw, both wild and tame. Crops of all kinds are coming along finely, and are very promising.

J. T. Mott.

Postville, Iowa, May 30, 1871.

Remarks.—The specimen enclosed in the letter was badly mutilated, but by considerable labor we got the broken and pressed fragments together, and ascertained our friend's insect to be the veritable New York Weevil—(*Ithycerus noveboracensis*). For more concerning it read answer to Mr. J. C. Finlayson, of Hardin county, Iowa. We are pleased to witness an increasing interest in Entomology, and like to have specimens sent us, but must insist that they be sent separate from the letter asking information, and giving such information as the writer has been able to gather. Send specimens in a box, packed in cotton, or if alive, with enough of their favorite food to last them on their journey.

Bumble Bees.—The Turf, Field and Farm thus puts in a word in behalf of bumble bees: "Boys think it glorious fun to fight bumble bees, but they should not be encouraged in the warfare. Bumble bees, like all the hymenoptera, play an important part in the great field of nature. The vein winged insects which fly from flower to flower do not injure or destroy the flowers, but make them productive by disturbing the pollen. They also rid us of innumerable noxious caterpillars and other insects, which they convert into wholesome food for their offspring.

☞The Toledo (Ohio) Blade says reports from fifty points in Ohio, Michigan and Illinois, place the fruit crop a little below an average.

Notes on Bee Culture.

How to Make a Good and Cheap Bee-Hive.

By W. C. Condit, *Howard Springs, Tenn.*

Eds. Pomologist and Gardener:

I have just received the May number of the Pomologist; and reading in it the article on Bees and Fruit, it occurred to me that a plain description of a good movable comb hive might be acceptable to many of your readers.

I have studied the subject of the construction of bee-hives pretty thoroughly for several years, having tried, in the meantime, the best patents the country affords. In the March No. of the Pomologist, 1870, I suggested the form and general features which must necessarily enter into the construction of a bee-hive, which should at the same time be easy to make and easy to handle in the management of the bees, and also conform to the needs and instincts of the occupants. Since writing the article referred to, I have made, and am now using a hive constructed in accordance with the principles therein enumerated. This hive is, inside measure, nineteen and one-fourth inches from front to rear, twelve and three-fourths from side to side, and fifteen and three-fourths deep—the boards nailed together with the grain running horizontally.

The bottom board is about seventeen by twenty-faur inches, with strong cleats on the under side. The cover a little larger than the bottom, with cleats to prevent warping and becoming misplaced. Neither top nor bottom fastened to the hive. The entrances are—an inch hole in the center of each end, and a slat in the bottom of each end, eight inches long and three-eights deep.

The frames hang crosswise, the ends of top pieces resting on top of the hive. The dimensions of the frames are such that there is three-eights space on each side and one-half inch at the bottom—the tops of the frames fitting close together. A division board of half-inch stuff is used to regulate the capacity.

Those of your readers who have the March No., 1870, can readily see, by reference to pages 46 and 47 of that No., the reasons for making the hive as here indicated. But for the benefit of those who may not have access to said No. I will here give a brief statement of those reasons.

First, the hive must be *tall*, so as to secure the storing of honey for the winter supplies of the colony in the upper portions of the combs, where it is needed for their successful wintering.

Secondly, a *division-board* must be used, so as to adjust the room to the size of the swarm or colony, in order both to facilitate comb-building, and to allow of the rapid building up of week colonies to strong ones. For the same reasons, the hive must be made *narrow* in proportion to length from front to rear, so that the room needed by a small colony, say three or four frames, may not be out of proportion.

We also find this form best adapted to nuclei for queen-rearing; as one hive is large enough for three or four good nuclei, and frames can be readily interchanged with strong colonies, to supply brood.

We use no boxes for surplus honey, but obtain it in frames in the rear end of the hive, where the bees will store it much more rapidly than in boxes; and then, by using the extractor, we have every advantage desired.

If any reader of this desires to make such a hive, and cannot do it from the above description, the writer will cheerfully give him full particulars, including dimensions, provided he will send with his application stamps or money sufficient to pay for time, stationery and postage.

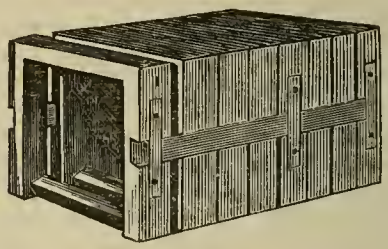


Fig. 1.

Sectional Honey Boxes.

In connection with Harbison's movable comb bee-hive is found the most convenient attachment in the line of surplus honey boxes that we have ever seen. Fig. 1 is a view of one of these boxes, while Fig. 2 shows a single section of the complete box.

The box is composed of eight rings, or frames, which are fastened closely together, as will be seen. The edges of these frames fit up closely together, and are fastened by clamps or straps let into rabbets on the sides, tacked at each end, forming a perfect box, which, if desired for retailing in market, or for private use, can be easily sub-divided in small parcels, of from one pound upward, to suit the wants of purchasers, without cutting, or in any way breaking a single cell of honey, thereby saving loss from leakage.

Fig. 2.

Size for Honey-boxes. At a bee-keepers convention at Elmira, N. Y., a talk was had on the best size for honey-boxes, and at what height from the ground hives should stand.

Mr. Chase thuoght boxes holding about four and

a half pounds the best size for honey. Mr. Haskell sold his honey in frames of about 2½ pounds. Gets as high as eighty pounds from a stock. Mr. Coke thought small boxes far the most salable. Mr. Dennison said, in the New York market they prefer honey in boxes of about four pounds.

On the height of hives from the ground, Mr. Haskell prefered four to six inches, as bees often fall on the ground when returning with stores, and could not ascend to the hive. Mr. Knght preferred having them as low as possible without absorbing moisture from the ground. He put them about one foot from the ground. Mr. Chase made his stand about three inches from the ground.

Bee Robbers and Bee Moths.

Robber bees and the moth worm may be considered as the cause of the most of the serious trouble that the bee-keeper meets with. It is so discouraging to find that a swarm has been driven from its hive, and the honey store robbed, when you had supposed it was in good condition. It is difficult to tell when a hive is being robbed. It is after a swarm has been subdued that you are deceived by supposing, as you see them pass in and out of the hive, that they are the rightful owners. You can readily ascertain, however, when a swarm is being attacked, if you watch them a few minutes. As the robbers fly on the alighting board they try to effect an entrance, but are met and examined by the owners of the honey store that they seek to secure in an unlawful manner. You can see the bees take rough hold of the robbers, while the latter will not make the least effort to defend themselves, but will only try to pull themselves away, making a kind of frightened buzz meanwhile. If yon suspect that a swarm has been driven out by robbers you have only to raise the top of the hive, and if the bees are robbers they will fly qnickly away, as they come to the top of the honeyboard. Legitimate owners will linger for a moment or two on the honeyboard, as if looking for the cause of disturbance, and will then fly about your head and face.

When I discover a swarm being attacked by robbers I close the entrance so that only one bee can enter at a time, and place two or three lumps of camphor on the alighting board. This soon has the effect of dispersing the robber bees. Camphor, which has been prepared for family use by being dissolved in alcohol, will probably answer the purpose, if a cloth be satnrated with it and placed in front of the hive. Robbers are attracted by the smell of the honey, and camphor, being so much stronger, destroys the attraction.

The use of camphor gum to prevent robbing is of recent discovery. Having tested it several times, I can assnre my bee-keeping friends, that if they will keep a supply on hand, they need have no fear of losing swarms by their being robbed.—*Cor. Chicago Tribune.*

Artificial Swarming.

I generally abopt a plan that I learned, I think, from Mr. R. C. Otis. Suppose you have two hives, No. 1 and No. 2, both strong, and an empty hive, No. 3.

From No. 1 take frame after frame, brushing back *all* the bees into the hive, until only two or three frames are left, and as fast as the frames are emptied, put them in No. 3. Fill up the vacancies in both hives with empty combs or frames.

Remove No. 2 to a new location, and set No. 3 in its place. The returning bees from No. 2 will supply No 3 with a good colony and will raise a queen; but it will save time if you furnish them with a fertile queen from a nucleus. To do this, as soon as No. 3 has started queen cells, which will be in two or three days, simply put in the queen at the top of the hive or at the entrance, without caging or any precaution whatever. I have not yet found an exception to the rule that *a queenless colony which has queen cells started, will readily accept any queen, fertile or unfertile.*

I am asked whether the Peabody melextractor will suit any but the Langstroth frames. I think it will suit any frame in use, but I have never tried it with any but two kinds.—*Cor. Am. Bee Journal.*

Arresting Absconding Swarms. A correspondent of the Amr. Bee Journal says: "My Impression is that the old-fashioned practice of tanging proceeds from a correct idea; that is, that a swarm will always alight when thoroughly alarmed, so as to disconcert them. The past season I nsed a large mirror and stopped by that means a swarm, which I had hived a few days previously, and which started to go off. I ran after it, flashing the sun's rays among them most thoroughly—the mirror being fourteen by twenty inches square. I stopped them on the last tree in the vicinity, and in five minutes had them nicely hived. I have frequently stopped them by throwing water, chips, or dirt among them, when starting to leave.

Potato Bugs Afloat.—The Detroit Post thus annonnces the arrival of the everlasting potato bug: "They come into our gardens, and even into our houses, and swarm upon our sidewalks to be crushed by the feet of pedestrians. A gentleman from Grosse Point reports that they seem to be quite as much at home on the water as upon the land, and that the surface of the lake is literally alive with them, as it often is with June flies which so swarm about our street lamps on warm summer evenings. He says that the potato bugs often fly a considerable distance, and that they float easily on the surface of the water. They are evidently bound to make a raid on Canada, and it will prove more disastrous than any Fenian raid has ever been.

Notes and Gleanings.

American Pomological Society.

We are in receipt of a circular of the American Pomological Society, concerning the thirteenth session of this National Association to be held in Richmond, Va., Sept. 6th, 7th and 8th, 1871, and from which we quote: "All Horticultural, Pomological, Agricultural, and other kindred institutions in the United States and British Provinces, are invited to send delegates, as large as they may deem expedient; and all other persons interested in the cultivation of fruits are invited to be present and take seats in the Convention.

"The coming session promises to be especially interesting, held as it will be in conjunction with the exhibition of the Virginia Pomological and Horticultural Society, and at a great central point, farther South than any previous session of the institution. This meeting will, therefore, it is believed, be one of the most useful, in a national point of view that has ever been held by the Society; thus affording an opportunity not only to examine the fruits of the South in comparison with those of the North, the West and of the Pacific Slope, which it is expected will be freely contributed, but also to foster and perpetuate the amicable and social relations which have heretofore existed between the members of the Society, and to widely diffuse the result of its deliberations for the benefit of our constantly expanding territory.

"Arrangements have been made with the various railroad companies, terminating in Richmond, to return all members and others free of charge, who have paid full fare in coming, and who exhibit certificates of the Treasurer that they have attended the sessions of the Society. Similar arrangements can undoubtedly be made by the various delegations, with roads in their localities.

"Members and Delegates are requested to contribute specimens of the fruits of their respective districts, and to communicate in regard to them whatever may aid in promoting the objects of the Society and the science of American Pomology. Each contributor is requested to prepare a complete list of his collection, and to present the same with his fruits, that a report of all the varieties entered may be submitted to the meeting as soon as practicable.

"Packages of fruits with the name of the contributor, may be addressed as follows: "American Pomological Society," care of H. K. Ellyson, Secretary Virginia Horticultural and Pomological Society, Richmond, Va. All persons desirous of becoming members can remit the admission fee to Thomas P. James, Esq., Treasurer, Philadelphia who will furnish them with transactions of the Society. Life Membership, ten dollars, Biennial, two dollars.

PREMIUMS TO BE AWARDED.

The following Premiums are subject to the general rule of restriction, where objects are not deemed worthy of the same. All fruits must be grown by the exhibitor.

The Virginia Pomological and Horticultural Society for sundries offer One Hundred and Fifty Dollars.

The Virginia State Agricultural Society offer One Hundred Dollars for the best collection of Fruit, embracing Apples, Pears, Peaches, and Grapes.

Ellwanger & Barry, of Rochester, New York, offer Fifty Dollars for the largest and best collection of Apples, not less than fifty varieties, three specimens of each.

Marshall P. Wilder, of Boston, Mass., offers Fifty Dollars for the largest and best collection of Pears, not less than fifty varieties, three specimens each.

Charles Downing, of Newburgh, New York, offers Fifty Dollars for the largest and best collection of American Grapes, not less than twenty varieties, three bunches each.

Thomas P. James, of Philadelphia, Pa., offers Thirty Dollars for the largest and best collection of Peaches, not less than ten varieties, of six specimens each.

General R. L. Page, Norfolk Va., offers Ten Dollars or a medal for the best half bushel of the Flowers Grape.

G. F. B. Leighton, Norfolk, Va., offers Twenty Dollars or a Medal, at the disposition of the American Pomological Society.

C. D. Barbot, Norfolk, Va., offers Twenty Dollars or a Medal for best dozen bottles of Scuppernong Wine.

L. Berkley, Norfolk, Va., offers Ten Dollars or a Medal for the best dozen bottles of the Flowers Grape Wine.

W. H. C. Lovett, Norfolk, Va., offers Ten Dollars or a Medal for best Dried Figs—cured within the territory of the Society.

Hon. Jno. B. Whitehead, Norfolk, Va., offers Twenty Dollars or a Medal for best half bushel of Scuppernong grapes.

W. S. Butt, Norfolk, Va., Two Premiums of Five Dollars each, or Medals—one for best Figs; the other at the disposal of the Society.

By H. M. Smith, Richmond, Va., Ten Dollars or a Medal for the best half bushel of Cider Apples.

By Downward, Anderson & Co., of Richmond, Va., Ten Dollars or a Medal for the best twelve bunches of Norton Grapes.

By Chas. T. Wortham & Co., of Richmond, Va., for best twelve bunches of Delaware Grapes.

By S. Zetelle, of Richmond, Va., Five Dollars or a Medal for best twelve specimens of Peaches.

By Messrs. Rudolph & English, of Richmond, Va., Five Dollars, at the disposal of the Society.

By Southern Fertilizer Co., Twenty Dollars, at the disposal of the Society.

The above Figs, Grapes and Wines, entered for premiums, to be the property of the Society, for the use of those members residing in those localities where they are not grown.

The whole amount of Premiums, general and special, offered by societies and individuals, in Virginia, has been generously placed by them at the disposal of the American Pomological Society.

It is also expected that other premiums will be added to the above list.

Fruit and Crops in Georgia.

Mr. A. C. Cook, Covington, Ga., writes, June 20th: "We will, in Georgia, have this season a large crop of most kinds of fruits, especially peaches. Blackberries are now ripe. Chiskasaw plums nearly gone; they could be gathered by wagon loads. The hardy grapes are doing well, although we have had a good deal of wet weather, such as naturally induces mildew. Wheat and oats have been badly affected by it. The Walter, Eumelae, Goethe, and other Roger's Hybrids have not shown any signs of disease. Some of them have already made 10 to 12 feet canes, and this the second season. There are but few figs; the trees were badly injured by the severe frost of 24th of December last —10 above zero at our house. I heard of other localities as low as 7 above zero.

It has been too wet and cold in April and May for cotton and corn. There will hardly be over two-thirds as much cotton as last year, which will prove a blessing for the South, as they will obtain more money than they would for a full crop.

More attention is bestowed this season than formerly on corn, peas and small grains, stock, etc. There is a fine opening for the dairy business in this country. Green feed can be produced nearly all the year, and milk and butter will command 40 and 50 cents, respectively. This is also one of the finest countries in the Union for raising sheep. It will not cost 50 cents per head, the year round. We have one of the best climates for health and labor, the temperature seldom below 20 degrees F., or above 90 degrees. We only need capital and intelligent labor to make the South a second Eden. Our people are law abiding and welcome all emigrants that may come to settle amongst us with a view to improve our lands or utilize our water power.

Grub in Peach Trees. — Examine the roots of the peach trees a few inches below the surface of the ground. If gum exudes, the grub is certainly at work under the bark. Dig it out at once. Should you chance to see a copper colored substance exuding from the stem of an apple tree, a borer may be found there also.

Plums for Name.—Mr. J. D. Redfield, Vinton, Iowa, sends us specimens of plums bottled in alcohol for a name, and of which he writes: "I grafted the scions from which these plums were grown into common wild plum stocks about three years ago. The trees are very hardy and the fruit of good quality."

We can scarcely approximate anything like a correct decision on the question of variety, as both the natural color and flavor of the fruit are neutralized by the effects of the alcohol—two very important essentials in passing judgment upon fruit of any kind. With fruit ripe and fresh from the trees, we might identify it, and if not attended with too much inconvenience, should be pleased to receive and examine specimens when in season.

Fruit in Washington Territory. A. B. Roberts, Walla Walla, W. T., writes us June 16: "Our season has been backward on account of much rain. Strawberries and Cherries are now in their full prime. Grapes are mostly in bloom, though some varieties are past blooming. Grapes bloomed this year just ten days later than last season. Our fruit crop is generally good. I will send you some specimens this summer if you wish — say, some grapes or plums, in the production of both of which we think we can equal the most favored localities in the world.

Remarks. We shall be pleased to receive specimens of your W. T. fruits, and to compare size and quality with Iowa productions of the same sort.

Water Sprouts and Suckers. During the season of growth, orchard trees should be looked over at regular intervals of two or three weeks, and all water sprouts and suckers rubbed off. If too large and firm to be thus removed without mutilating the bark of the tree, cut them off close up, and smooth —not leaving the slightest stub. Nothing gives to a tree or an orchard, an aspect so slovenish and forsaken, as does a crop of water sprouts and suckers, to say nothing of their exhaustive effects upon the legitimate growth of the trees.

To Save Girdled Trees.—A. Dwinell of Walpole, N. H., writes to the N. Y. Farmers' Club: "Three years ago the present spring I found that one of my largest and finest apple trees was girdled. The bark was gnawed entirely off close to the ground to the width of about four inches. I immediately banked the tree with clayey loam to the height of ten or twelve inches, stamping the dirt firmly around the gnawed spot. The tree at the present time is as thrifty as any in the orchard. It has borne two fine crops of fruit since it was injured, and no signs of decay have ever been apparent.

Buckwheat for Potato Bugs.—The Monroe (Ohio) Sentinel says it has been ascertained by persons in that vicinity that buckwheat flour sprinkled on the vines when the dew is on, will have the effect to make the stupid bug "get up and go off—bag and baggage." "It puts their eyes out," and it should be put on dry or the bugs will make pancakes of the flour and demand syrup to eat on them. The reason given by those who have made the potato bug a study, for buckwheat being so efficacious in destroying these pests, is that the flour coming in contact with the bug and vine forms a combination which is rank poison, and yet harmless to the potato.

Remarks —If buckwheat is an effectual remedy as stated above, its use is preferable to anything we have before heard of—being both safe and cheap. Our faith in it, however, is not strong enough to venture much upon it before making a small trial.

Sweet Russian Turnip. A correspondent of the Ohio Farmer speaks highly of this turnip. They are fit for use as soon as large enough and, if properly stored through the winter, will keep until the next July and be fit for use.

About the first to the middle of July is the best time to sow the seed. To be best they should grow quick, therefore the ground should be rich and mellow. Sow in drills two and a half feet apart, or wider if the cultivation is to be with a horse, and thin to eight inches in the row. They will bear transplanting the same as a cabbage, if the work is done on a damp, cloudy day.

Large Fruit Trees. The Ventura (Cal.) Signal claims for that region some of the largest pear, palm, English walnut, and olive trees to be found in the United States. Says: "Back of our office is the old Mission orchard, containing trees of the following dimensions: Three date-palms, from seven to nine feet in circumference, and from forty to fifty feet high. Pear trees eight feet in circumference, and olives seven. Three English walnuts, the largest six feet in circumference, about thirty feet in height, and a spread of top sixty feet. Except the palms they are all loaded with fruit.

Blight on Apple Trees.—The Western Farmer says: "Many apple trees in this vicinity now plainly show the effects of 'fire blight' as it is usually called—in large numbers of dead and dying twigs. While the cause of this is in dispute and there seems to be no preventive, it is a comfort to know that, although the trees are much disfigured, no very serious injury is ordinarily caused. It is better, when it can be done conveniently, to cut back the affected twigs to sound wood.

☞The peach crop in Delaware promises the largest yield ever known in that State.

Peach Basket Business.—People outside of the fruit districts of the country, have nothing like a true idea of the magnitude of the trade in fruit baskets and boxes. According to the Benton Harbor Palladium, one firm in that place is turning out from 3,000 to 4,000 peach baskets per day. Last year one firm at the place made 300,000 baskets, and another made 60,000; at St. Joseph, 150,000 were made; at Dowagiac, 150,000, and at Coloala, 80,000 were made. Other parties also made large numbers.

Pine Apples.—The Boston Cultivator says pine apples in that market have not sold so readily for many years. On Friday week 13,000 were received in bulk from New York, by Seaverns & Co., on North Market street, which, with their receipts earlier in the week, footed up nearly 40,000. Their actual sales for the week amounting to over 100,000 apples. The fruit is in nice order, and sells quick at about $15 per hundred.

Self Dried Cherries. In some parts of California on account of the drouth, cherries have dried up on the trees. At Alameda the *Encinal* represents the trees almost broken down with their weight of fruit, all shrunken and unfit for market as fresh cherries; but they will make admirable dried ones, retaining their flavor and sweetness better than those dried off the branches.

The Green Prolific. — At a recent meeting of the St. Louis Farmers' Club, Mr. Peabody said it was as prolific as the Wilson, and a sweeter fruit, but softer, does not bear shipping as well, nor is it as good color. Mr. Votaw had cultivated it four years, and realized more profit from it than from the Wilson, which two varieties were the only ones he cultivated at present.

Oregon for Fruit.—The Pacific (Cal.) Press says: "The late frosts which seriously injured the fruit in some of the northern parts of this State did no damage in Oregon. There was quite a smart frost in Los Angeles on Sunday last, May 29th, and much of the young fruit, such as peaches, apples, oranges, etc., was strewed upon the ground beneath the trees.

Mice.—A fruit grower near Lockport, N. Y. carefully banked up his apple trees in the Fall, and had then no apprehension of danger from mice. It occurred to him recently to make an examination, and, to his surprise, he found that the mice had burrowed beneath the mounds of earth, and made sad havoc with quite a number of his most valuable trees.

☞A large fruit crop is promised in Grande Ronde valley, Eastern Oregon.

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MARK MILLER,
Editor and Publisher, - - *Des Moines, Iowa.*

DR. J. STAYMAN,
Associate Editor, - - *Leavenworth, Kansas.*

DR. WM. M. HOWSLEY,
Corresponding Editor, - - *Leavenworth, Kansas.*

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☞It should be observed by advertisers that our columns are much wider than those of news and agricultural papers generally.

The Criticisms of the Grape Culturist.

BY THE ASSOCIATE EDITOR.

We noticed in the May number of the *Grape Culturist*, that we had been rather severely criticised by friend Husman, on our report on grapes, read before the Missouri Valley Grape Growers' Association, and published in the April No. of the POMOLOGIST. We always admire frank, candid and fearless criticism, and if properly done, it should lead to beneficial results, but we remember an old saying which has lost nothing by its antiquity, that appears very applicable at the present time, and will bear repeating. "First cast out the beam out of thine own eye; and then thou shalt see clearly to cast out the mote out of thy brother's eye." If we had been writing on orthography and had read our own proof his remarks on spelling some of the technical names of the species of grapes might have been more appropriate, but we have done neither, and if we had we did not set up claim to infallibility. However much we regret to find typographical errors in our productions, it appears impossible to always avoid them.

But criticisms of that character come with poor grace from an editor, particularly when he commits the same kind of errors, adds to our report, misquotes from it, and then criticises his own mistakes. We would refer him to his own article, page 103, second line from bottom, where he will find "hat" for "that," and in January number, 1869, he will find the species of grape named *æstivalis*, to occur eight times, and in every instance wrong, thus "*Aestivalis*," instead of *æstivalis*. On page 37, February number, 1871, he will find *S*abrusca for Labrusca. On page 194, July number, 1870, vinifari for vinifera. And on page 100, May number, ninth line in our report he will find the word "*where*" added, it not being in the original article. Such errors we should pass by except to show that friend Husman is not himself free from the errors he charges others. But while we are willing to pass by typographical and grammatical errors, we cannot pass by those of misquotation and misconstruction. Whether they are errors of the head or heart, we care but little, for we hold it to be the duty of a critic to *know what he is doing*, if not for his own sake it should be for the gublic good, as well as for to show respect to his opponent.

Mr. Husman asserts that we say that "The Catawba, Isabella, Delaware, and their seedlings will not succeed, and that the cause for them failing is in that they are not pure native species."

He then comments as follows: "We may grant the former, but emphatically deny the latter assertion." Now friend Husman, this will not do, although we were somewhat diverted in reading it, but it is too tame to think you can make us or the public believe it as a correct quotation, after reading what we did say, which is as follows:

"From numerous observations made, and facts collected, the Catawba, Isabella and Delaware grapes and their seedlings will not succeed under these extreme conditions of temperature and moisture."

Here you have the whole sentence, and you cannot find your latter part, which you so "*emphatically deny.*" You cannot even find such an idea advanced, for we positively say they will not succeed under certain conditions of temperature and moisture, which we had previously pointed out.

But the great sin we have committed appears to have been in naming a class of grapes that Mr. Husman says, "of which we have not heard anything so far." Perhaps he has not, but if he had been an attentive reader of either the *Gardeners' Monthly* or *Journal of Agriculture*, 1869, he would have seen the subject there discussed.

Now Mr. Husman, what have we done in this instance different from yourself? You call that class of grapes which will not endure this climate except the Scuppernong, "the southern class of the *Aestivalis* family;" or, as you say again, "the southern division of the *Aestivalis* class * * of which the Herbemont may be considered the type." *We* name that class of grapes natives of the middle States which endures our climate, but will not mature as far north as the æstivalis is found, the Virginica class of which the Norton Virginia is the type.

Botanists recognize neither of these classes or divisions, but make the æstivalis species extend from north to south, and to do so must found their classification entirely upon the condition of the under side of the foliage of the grape, regardless of other more important characteristics.

In our report we said—"We find the wild grapes growing in Kansas and Missouri abundantly and luxuriantly hardy and healthy, bearing fruit of the very richest quality." To which Mr. Husman remarks:

"Now we have seen as much rot on the wild grapes of all classes as we ever did on the cultivated ones; and we have observed them closely for twenty-five years. Among each class we find some exempt from rot and disease, while others were very much subject to them, and we have found *no* class entirely free from disease, be it æstivalis, labrusca, cordifolia, or riparia. So much for this part of the learned Professor's *theory*, which is unsupported by a single *fact*, and therefore mere assertion."

The first query arises in our mind how friend Husman could observe for "*twenty-five years* as *much rot* on the *wild grapes* of all classes" when two species are not indigenous in his neighborhood. In Feb. No. of *Grape Culturist*, 1869, he says:—"In 1848 Mr. Charles Terbner brought a number of Scuppernong vines, of both the white and black varieties, from Alabama, and planted them on the place where we now reside, in the neighborhood of Hermann." In Sept. No., 1870 he says: "But we have had it growing for fifteen years near Hermann, and all we obtained of it during that time was three bunches of half a dozen berries each which we attempted to eat, but gave it up in disgust. It will not stand the climate here." Here, according to Mr. Husman's own showing, the *vulpina* class is not growing wild in his section. Now, until Mr. Husman shows that the *labrusca* species is found growing wild there, we shall believe he has been making the assertions he charges us of doing. That the *labrusca cordifolia* or *æstivalis* species as found growing wild are as subject to rot and mildew as the Catawba, Isabella, Delaware and their seedlings, he will fail to prove.

Col. John J. Worth in January number of *Grape Culturist*, 1869, says: "Let us take the *vitis labrusca*—the family of *fox grapes*, as we call them in Virginia. My observation, for a half-century, over a large extent of country, has taught me that this family of grapes are always found either in bottom lands or near creeks and spring branches—their roots plunging into the ever damp and sometimes boggy ground; and mereover, it has been of very rare occurrence indeed that a mildewed leaf or rotten berry has been seen by me."

Mr. William Sanders, Superintendent of the experimental gardens, Washington, D. C., says of the "*vitis cordifolia*—This section represents the most healthy grapes of the Northern States; the foliage is rarely attacked by mildew, although the leaves, possibly owing to their smoothness, are occasionally injured by insect punctures. The fruit is not subject to rot." Of the *vitis æstivalis* he says: "The foliage is not so liable to disease as that of the fox grape and rot in the berries is comparatively unknown." And Mr. George Husman says: "Among each class we have found some exempt from rot and disease."

Now, friend Husman, are we not supported "by a single *fact*," you even bearing witness? And where is that "part of the learned Professor's *theory*," which you have made so emphatic? Can it be possible that stating simple *facts* is a "*theory*?" We might also remind you that *riparia* is not considered a species by *Gray*, but a variety, although you have used it in that connection.

In our report we remarked that, "Rogers has produced many varieties by hybridizing the common fox crape (*vitis labrusca*) with the European grape. In these hybrids we find every peculiarity belonging to our improved varieties, as the Catawba, Isabella and Delaware and their seedlings. The most of Rogers' hybrids are good in quality, and some very good, but none of them are entirely hardy and free from disease, but are more or less subject to rot and mildew. Others are fickle and uncertain; some are ovate in shape, the berries adhere to the stems of all and do not drop their fruit when ripe, but none will endure extremes of temperatare and moisture.

Not any of these peculiarities belong to the Fox grape, but they all belong to the European grape." To all of which Mr. Husman replies in the following quaint style:

"The Catawba and Isabella are pure native seedlings, according to *all* the authorities, *except Dr. Stayman*, and he does not produce a single proof that they are *not*. The evidence he tries to give is, 'that they have the peculiarity of hybrids,' as the Rogers', for instance. We emphatically deny this. There is no peculiarity in the Catawba and Isabella which is not native, pure and simple. Foliage, growth of wood, berry, flesh, pulp and all, are unmistakably native."

From the above extract it will appear very evident that Mr. Husman was considerably confused, for he has not only forgotten his logic, but has left off a member of our premise, and then substituted another proposition and discussed it. Why did he omit the Delaware grape which is as much a member of our premise as the Catawba and Isabella. He certainly will not admit we were correct respecting it. The difficulty no doubt was, the Delaware grape would not pass through the same ordeal he took the other varities, well knowing it was not considered a "pure native seedling by *all* the athorities." We presented the following proposition:

"In these hybrids we find every peculiarity belonging to our improved varieties as the Catawba, Isabella and Delaware and their seedlings," which Mr. Husman corroborates in the following language: "The evidence he tries to give is that *they have the peculiarities of hybrids*, as Rogers for instance." Now hear his laconic reply:

"We emphatically deny this. *There is no peculiarity* in the Catawba and Isabella *which is not native, pure and simple.* Foliage, growth of wood, berry, flesh, pulp and all are unmistakably native."

We have emphasized the parts showing he has evaded a direct reply to our proposition, and has also left off one of the members of our premise (the Delaware grape.) Even if he had sustained his position logically speaking, we would have been one third correct, for that part has not been denied.

In concluding our remarks would say, that we do not much admire the spirit of some of Mr. Husman's criticisms. For however much we may differ with each other, we should always endeavor to show dignity and respect to others and discuss in the spirit of meekness and kindness for the purpose of eliciting truth. Mr. Husman has used the appellation *Professor* (which we have never assumed) in an ironical and derogatory manner, thus—"so much for this part of the learned Professor's *theory*." "The members did not generally share the learned Professor's opinions," &c. And then to apparently cap the climax, he added the following misrepresentation:

"Besides, we remember reading a very lengthy dissertation of his some years ago, in which he proved (to *his* satisfaction at least), that no *light-colored* fruit *could* be *healthy* and hardy."

Comment on the above is unnecessary except on the last sentence, which we simply deny and respectfully ask Mr. Husman to give the facts wherein we said "that no *light-colored* fruit *could* be *healthy and hardy*.

This being so unwarrantable and uncalled for, in justice to one's self we will give an extract from the remarks of *Mr. Thomas Meehan, Editor* of the *Gardeners' Monthly*, who is well acquainted with our views, having published the most of them. He says, March, 1866:

"It is not more than two years ago, we believe, in an article on Raspberries and Blackberries, that we pointed out the probability of light-colored fruits being the tenderest, but by the articles of Dr. Stayman, who had, previous to our suggestions, been experimenting particularly on this subject—the matter has become one of great interest to intelligent cultivators. The real matter is this:—Paleness has long been identified with sickliness; that is to say, the pale man or the pale plant is not considered so hale and harty as the ruddier neighbor; paleness being used as *a comparative term between closely allied individuals.* Varieties of fruits, in fact, are precisely as individuals amongst men. No dozen children, from the same parents, are like each other; and no dozen seedling apples are more like their parent fruit than these. As the pale-faced child will generally be more tender than his brother who is darker,—Dr. Stayman so shows the rule holds good with seedling fruits of the same individual families. This we believe to be our correspondent's claim to a new discovery and no more—and they have our hearty endorsement. No writer has before put them into a shape to be of practical use to cultivators,—and Dr. Stayman deserves the credit of discovering a valuable rule in pomological science."

How very different are our views presented by Mr. Meehan who is not only one of our most intellectual and able horticultural writers, but also one of the most clear and acute observers. Almost in anticipation of what Mr. Husman would say he further says:

"It is not unfrequent, indeed, it is the rule, when any new subject of philosophical inquiry is presented, that controvertists mistake the position they oppose, and hence mystify and obscure what other-

wise would be clear enough. Dr. Stayman's views are going through this ordeal."

How remarkably prophetic is the above saying in the present case. We hope Mr. Husman will copy this and give us a hearing before his readers.

The Failure of the Pear and Apple Crop this Year, 1871—What Is Its Cause.

By the Corresponding Editor.

That the Pear and the Apple crop this year, will be very greatly reduced over a very large portion of the Mississippi Valley, is a fact which has been ascertained from correspondents. These persons live at different points of the country named, and are well qualified to know the facts of which they speak. In Kansas, Missouri, Illinois, Indiana, Ohio and Kentucky, this failure is strikingly visible. It is in most cases confined to certain varieties, especially where the trees have borne but few crops. So far as varieties are concerned, the *Wine Sap* has succeeded better than almost any other variety in Kansas. In the correspondence above referred to, the crop, of both the pear and apple, is supposed not to exceed a half, and perhaps not more than a third of what is usual.

The above facts being established, the question arises, why this failure, seeing that all the stone fruits passed the winter safely and will produce fine crops, excepting those which were cut off by the frost of 22d April, last. As a general thing, the mercury throughout the West, did not fall lower than from 10 to 12 below zero. And since the time of blooming, did not in many instances fall lower than 27 above zero. Neither of the above degrees was sufficient, the first to kill the peach in the bud, (much less the apple or pear,) and the second not low enough to kill the peach in the bloom. Seeing then, that the tender peach has escaped the frosts of both the Winter and Spring, the question recurs again, why is it, that the pear and apple have so *generally* failed.

We have given much thought and observation to this subject, and have been forced to the following conclusion; and that is, that the freeze of 15th, 16th and 17th of April, 1870 was so intense as to kill not only the fruit buds and blossoms for that year, but also to kill the buds that would otherwise have bloomed and fruited this year upon the pear and apple. The the foregoing is our theory. Now we will give some of the facts which have brought us to this conclusion.

First, in trimming our trees during the last summer, we found that from one-eighth to one-third of an inch of a great many of the points of the fruit spurs sloughed off from the ballance, thus destroying the blossom-bud for this year, as well as that of last year.

Secondly, we have some twelve bearing trees of the McAfee's Nonsuch, not a single one of which showed any bloom the past spring. Three Rambos, which ought to have borne from six to eight bushels each, upon all of which there will not be one dozen specimens. Five Pryor's Red, each of which ought to have produced from four to eight bushels each, that will not, all taken together, yield two dozen specimens. This last variety showed some blossoms on the very tip ends of the topmost shoots, which were made during the growing season of 1870, but showing scarcely a bloom on the side spurs where they uniformly bear their fruit. Three bearing trees of the Ben Davis variety —all of which will not produce a peck of fruit, and the few specimens they have are inclined to drop from the tree prematurely. Twenty-five trees of the Raules Jannette, most of which bore well in '69, and as an alternate bearer ought to, and would have borne under ordinary circumstances, a fine crop this year, but are, on the contrary, bearing very sparcely. These blossomed in '70 after the freeze of April 17th, but the fruit all dropped off. We might name many others that are failing alike from like influences.

Thirdly, most of the trees which show any fruit this year, show it in the tops, and scarcely any on the lower limbs, on which fruit usually first appears —thus showing that *frost* has had a telling influence upon the crop.

Now, we know that the apple and the pear crop is almost uniformly borne on the side spurs, consisting of wood not less than two years old, and that those spurs which bloomed last year, and were killed, would have bloomed and borne this year, if the bloom-bud for this year had not been killed last year; seeing there has been no frost during the past winter or spring to kill either bud in the winter or blossom in the spring—why, then, with the above condition of the mercury during the past winter and spring did we not have bloom and fruit on trees that had borne fruit in previous years? If the bud for '71 was killed in '70, the fact of no bloom or fruit in '71 is in strict accord with the above theory. If it was not killed in '70, then there is no accounting for the entire failure of some varieties the present season, that have heretofore been uniform bearers.

Again, if some kinds have failed to bloom on the two years' old wood, and have nevertheless bloomed on wood made since the freeze of April, 1870, it would seem that the evil was done before the growing of this young wood. All the blossoms produced however, on the young wood made since April, 1870, have proved abortive. The fact that most of the trees which are bearing small crops, produce their fruit in or near the tops of the trees, proves that frost, previous to the present season, has had the disastrous influence, since there has been none

during the winter and spring of 1871 to produce such a result. A further confirmation of the above position is the fact that the peach, the most tender of all the stone fruits in the dormant bud, and which uniformly bears its fruit on wood made during the previous season, is this season bearing an abundant crop, and that too of the finer and more tender *budded* varieties.

The above theory is given in explanation of what to some may seem a bewildering difficulty. The theory and the facts we think are in strict harmony with each other, and makes the solution a clear and easy one. We offer it however only as a theory. If any of our readers can give a more satisfactory solution of the subject we should be pleased to have such solution come before the fruit growing public.

Should Trees be Pruned.

By the Associate Editor.

In the May number of the Pomologist our friend Elliott, of Cleveland, Ohio, says "we are following Mr. Hovey's footsteps in advising of no pruning at transplanting, and if we have not read the discussion between Mr. Downing and Mr. Hovey some years since on this point it may not hurt us to do so."

We have not read the controversy referred to, but would be much pleased to do so if we had the opportunity, for we have no doubt but it would be interesting and instructive, coming from such able men.

It is another evidence that there are two sides to the question, and that we are ably sustained or rather that we have arrived at the same conclusions others have, without having had any previous knowledge of what led them to such belief and practice.

And if friend Elliott could not come to the conclusion after many years of experience and observation that pruning *was necessary*, it shows that there has been no evidence to sustain it, for he says: "In a practice of thirty years, I have experimented some myself, watched others more. and confess that to-day I *know* nothing."

There is one important matter connected with this subject which we must not overlook, which has placed friend Elliott and others in such a bad predicament, that is, they have *no facts* to sustain their pruning, else they would give them and not admit they "*know* nothing." But it is still more remarkably strange that such persons after admitting they "*know* nothing," they should assume to place all trees under various diseases requiring different prescriptions, for Mr. Elliott says: "Years since, I became satisfied that no line of practice could any more be laid down by line and rule in Horticulture than in Medicine; each individual life needing for its case a distinct and separate prescription; so that while we may give a general prescription of how to prune, or how to manure a variety of vine or tree, without seeing the patient we can do nothing reliable, and then not without having a previous knowledge of the same disease, and general character of the patient."

Here friend Elliott places vegetable life naturally in an abnormal condition and then contrasts it with diseased animal life requiring a prescription as in the practice of medicine. This might be a correct method of reasoning if the premises were admitted or proven but this we deny. While we admit plants may *become diseased*, we do not admit that they are naturally so, and if they were so that different manipulations in *pruning* would restore them to health. Plants like animals have certain conditions necessary to their healthy existence.

It is the study of those in their native homes, in their natural condition, which should be our object, and then place them under congenial circumstances, instead of assuming that plants are naturally diseased and that "each individual life (plant) needed for its care a distinct and separate prescription."

"Electricity" not! "the Growth of Trees."

By Suel Foster, Muscatine.

In the July number is a reply to my refutation of Dr. Stayman's statement that electricity is the greatest agent in the growth of trees. I said "a tree grows much as the boy whistled—'it whistled itself'—so the tree grows." Now I am prepared to prove *this fact*, and to disprove that electricity is the principal agent, or power, in the growth of a tree.

First, the tree *inherits, maintains and works* its own natural powers the Creator established in the seed which brought forth the tree. The first principle of our trees was inherited from their parent trees, assisted, directed and finished by the flower which impregnated the seed, and this was assisted by all the agencies which contribute to the growth of the tree.

Second, I find a principle in the varied deviation of the new generation of the tree that I am not able to explain, nor has any one as yet been able to teach it to us, nor can Dr. Stayman credit it to electricity, nor I to "the tree grows itself." It is this, that while the cion of the Rhode Island Greening will always produce the tree, leaf and fruit of itself, the seed of the same tree will not be the Rhode Island Greening. Then we find that while the tree grows itself, it does not grow its own seed itself, nor can we credit it to electricity, nor can we find what to credit it to. Why the seed will differ at all from the parent any more than the leaf or fruit, much more the seeds of the same apple, impregnated by the same flower, the same time, is as far beyond my comprehension as it is that electricity grows a tree.

Third, to prove that "a tree grows itself," and that electricity does not grow it, the oak invariably grows the oak leaf and acorn, and never grows the apple, and the apple leaf; and the apple tree grows its own fruit and leaves, and not those of the oak. I ask Dr. S. if he can not see more of the agency of the tree itself in this work, than that of electricity?

Fourth, the tree cannot grow of itself without agencies to assist it. Yes, I must admit this, as much so as the man who builds a house, or prints a paper, must have agencies to assist. What are these agencies, electricity? Yes; as I said before, earth, water, air, with all their constituent parts—oxygen, nitrogen, hydrogen, electricity, (if the latter is not a component part of the atmosphere, it is omnipresent, as is water,) light of the sun, heat. Not only all, but any one of which has as much to do with the growth of the tree as electricity. If we examine the agency of water, we find it carrying all the other materials, drinking in the rays of the sun, and excluding none, carrying all to the leaves, and re-freighting back to their destiny where they are ordered—what orders them, the materials of the trees growth? Is it electricity? Or is it the tree itself?

Fifth, Who knows best its own wants, the tree itself, or electricity? *Herein lies the secret of the growth of the tree itself, that it orders its own food for its own building up, and distributes it to its own wants and uses, by its own inherited power.* Why, a tree is a perfect republic in itself, allowing no foreign power like electricity to come in and set up a dictatorship. I have seen electricity attempt this with its awful overbearing tyrany, attempt its powers on the oak, stalwart and nobly defending its modest rights, even to its rending asunder, and perishing in its noble independence.

The Apple Question in Minnesota.

By Lewis Martin, Anoka, Minn.

Ed. Pomologist and Gardener.—Taking your valuable paper for a medium, I wish to throw out a few hints on the varieties and care of fruit trees suited to Minnesota. Fifteen years ago I came to Minnesota and settled in Anoka county, latitude 45 deg. north. At that time Mr. L. M. Ford, of St. Anthony, was starting a nursery and garden. After many disappointments from not knowing how to do it, and the varieties that would flourish here, he came to the conclusion, as did many other good and well-meaning men, that apples would not grow in Minnesota. Since that time, men of energy, perseverance and pluck, have fought the obstacles incident to an untried soil and climate, and achieved gratifying success. Raising an orchard here is, however, a very different matter from what it is in Michigan, Ohio or other good fruit regions. Yet, by selecting the proper varieties, and the right kind of cultivation and protection, success is certain. I have tested quite a number of varieties of grafted fruit and a good many Minnesota seedlings. The varieties which have succeeded best with me, are Duchess of O., Tetofski, Haas, and Ben Davis. The Duchess of O. is the hardiest of all the grafted apples, and I consider it the most valuable of all apples for this region. It is an early and abundant bearer, and will do well on a sandy soil with proper care. There are other varieties doing well here in favorable localities and on clayey soil. The Fameuse, Tollman Sweet, Perry Russet, Plum's Cider, with a few others of the most hardy sorts. The Crab Apples all do well here, and with proper care will yield an abundance of fruit on any soil and in any locality.

The Transcendent and Hislop are the leading varieties of Crabs, and thousands are being planted every year. There is, however, one difficulty which must be overcome to make fruit raising a perfect success in the Northwest. Most of the stock in market is grafted on tender stocks and is liable to frost kill. Several valuable trees were lost in this vicinity the past winter from this cause. Trees that had been bearing six or eight years were found to be frost killed in the spring. So far as my observation extends, the roots suffer most on light sandy soils. But no tree is safe except those on crab bottoms, unless it is heavily mulched with barn-yard manure about the time the ground freezes in order to prevent dry freezing. I think it best to set the trees about three inches deeper than they grew in the nursery, [better down 6 to 8 inches.—Ed.] particularly if the soil is light. The last winter was very trying to the roots as the ground froze up very dry and remained nearly bare all winter, and the fall of snow very light.

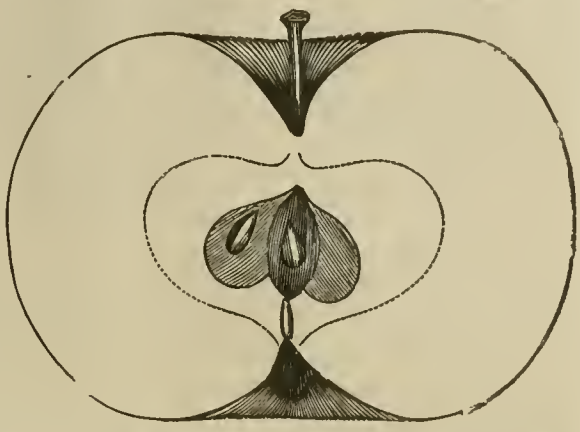
Common seedling stocks will do well enough for the East and South, but not for the Northwest. If we would have a permanent foundation for healthy orchards in the Northwest, we must use crab stocks. We have many seedling apple trees in our State that are hardy and worthy of propagation—seedlings of sound wood, and healthy bark, which show hardiness sufficient for our climate, are what is needed. Among the seedlings of this class are the Wealthy, Molly, Hawkins Chief, Minnesota Prince, and Missouri's Treasure. The wood of all these trees is as healthy as that of a Transcendent Crab. They have been in bearing several years under repeated reproduction from the seeds of these trees. May we not look for fruit equal to the best eastern varieties?

Grapes in California. The Pacific Press of the 27th ult., says: "Favorable reports still continue to come in from the grape crops. An immense number of new vines will come into bearing for the first time this season.

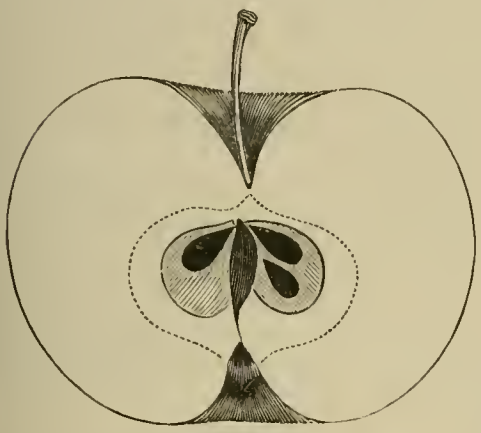
A Chapter on Apples.—Prolific Blush.

By The Associate Editor.

Fruit medium, and weight from 5 to 7 ounces; form oblate regular; skin clear, waxen white, with a blush; stem long and slender; cavity wide, deep, and regular; eye small, closed; basin wide and shallow, furrowed; core open, rather large; carpels wide open; seeds small, short, plump, dark brown; flesh very white and clear, juicy, slightly acid; quality only good; use, kitchen and market; season September to December. Tree slow grower; leaves broad, light green; very early and abundant bearer; very late in blooming; regular grower; fruit very handsome and attractive.



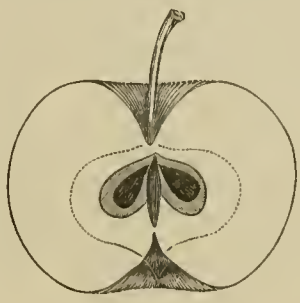
This apple is said to have been raised by Mr. Cocklin, Shepherdstown, Cumberland Co., Pennsylvania. We procured it of Mr. David Miller, of Carlisle, Pa., 1859. Mr. Charles Downing, says May 14, in Moore's Rural New Yorker, that this apple "comes early into bearing, is very productive and although not of the first quality for the table, is a valuable variety for culinary purposes. Being handsome it commands a good price in the market."



CASTOR CRAB.

Fruit large, form oblate, slightly conic; skin greenish-yellow, covered with dull red bright crimson, some russeted; dots irregular, large, scattered, grey; stem long, slender; cavity wide, deep, regular, russeted; eye small, closed; basin shallow, narrow; core medium, regular, slightly open; carpels large, wide; seeds rather large, dark brown, plumt ovate; flesh whitish, tolerably juicy, sharp acid, good for cider; season, November to April; tree healthy, moderate grower, productive; twigs slender, thorny, bears in clusters; leaves small and slender. Introduced here by Dr. Howsley from Kentucky.

A Bouquet of Apricots.—The Sacramento (Cal.) Union acknowledges the presentation of the limb of an apricot tree a little over three feet in length, containing 250 full grown apricots.



SHOWY CRAB.

Fruit medium; form oblate, slightly conic; skin yellow, covered with purple crimson, with a blue bloom; dots scattered, prominent, stem long, slender; cavity wide, deep, regular, russeted; eyes mall, open; basin shallow, wide; core large; carpels small; seed large, black; flesh yellow, juey agreeable, mild pleasant acid; quality excellent for preserves and fair for table; season, October to January; tree vigorous, healthy, erect, very productive, bark dark.

Heading-in Peach Trees.—A correspondent of the *Farmer*, published at Augusta, Ga., set out a peach orchard in January, 1870. The trees at transplanting were cut off to within six to twelve inches of the ground. March 30th, 1871, he writes to the *Farmer:* "Many of the trees are several feet high, and full of fruit. I have Hale's Early as large as a partridge egg. Remember I cut the trees all off from six to twelve inches from the ground. The form of these is exquisite. Now, I want to know how much fruit I shall allow to remain on the tree."

Local Temperatures—Bearing on Fruit Culture.

By F. Hawn, Leavenworth, Kan.

Ed. Pomologist and Gardener: Heat or varied temperature, and its different effects on different substances, with their varied powers of receiving and transmitting it, affords not only of themselves vast numbers of curious phenomena, but are the immediate forces in the economy of animated nature itself. Leaving the different theories of the chemical nature of caloric to the scientist, we will pass to some of its relations, combinations and practical effects on the affairs of life.

Among the many sources of latent heat, the most essential amount and quality necessary to a healthy growth of vegetation, is evidently absorbed directly from the sun. The force or intensity from this source is mainly proportional to the verticity of that planet, modified by a given surface. Of 8,000 of the sun's rays that fall perpendicularly, and reach the earth, 7,000 only reach the surface, when they are at an angle of 50 degrees, and when at 40 degrees frost may occur.

Altitude plays a notable part in the modification of temperatures. Elevation above the level of the ocean or the general level of the country makes a regular variation in temperature; the first 300 feet makes a difference of a degree, almost as truly as though the height had been measured. This arises from the diminution of reflected heat from surrounding objects. After ascending 300 feet the thermometer falls a degree in 295 feet, then at 277, 252, 223, and 192 feet; so that at an elevation of 1539 feet the thermometer will fall six degrees.

While such principles apply in a general way, different results are produced at local situations. For instance: It is known that the destruction of fruit in the germ occurs from frost in our climate more often on the low grounds and in the valleys than on the uplands. Three causes lead to such results, viz: a limited distribution of the sun's rays; radiation of heat from the surface without refraction, and evaporation. The position of much of the surface of valleys relative to the sun is such as to receive his rays at a small angle, with a consequent decrease of the rays and force. The ground under such conditions is not warmed up to the same degree as that of a comparatively level surface, such as the uplands that receive the rays more direct.

At night when this warming process ceases, the surface parts with this limited heat very readily by radiation. Sheltered as it is from the action of the winds, this heat ascends aloft until it reaches the uplands, when it is refracted by the passing breeze, and is thus kept near the surface; while the cold and heavier air presses down to the lowlands and into the valleys. This produces compound results; as while the temperature of the uplands is increased, that of the low grounds and valleys is decreased.

Evaporation is a force in its results much like that of *radiation*. Every drop of water or diffused moisture that is evaporated from the surface carries with it an equal degree of heat that would be required to convert a drop of water into vapor by artificial means. This invisible vapor is continually arising, and with its heat carried to the uplands. Sometimes however it is condensed into fogs that remain in the valleys and lowlands until they are attenuated by rarifaction, when they ascend and are dissipated. In the spring of the year, when these forces are very active, a sharp line between the temperature of valleys and uplands is often rendered perceptible to the senses.

No general rule can be established that will elucidate and apply to these different phenomena in all localities. There are too many contingencies embracing such as the extent and depth of the valleys, their trend and moisture, slopes, nature of the soil, etc. There may be situations and conditions where the temperature of a portion of a valley may have a higher thermal range at some period of the twenty-four hours, in some seasons of the year. Such localities are peculiarly objectionable; for the great diurnal range that necessarily follows is detrimental to the health of plants as well as the human system.

Hence we find that some portions of a valley may be comparatively salubrious, and others are the reverse. Among the vine clad valleys of Europe, vineyards have become celebrated for the excellence of their wines, while others in the same neighborhood with different exposures, are of but indifferent quality; the varieties of grapes being the same and no material analytical difference in their soils. The one has perfect climatic conditions, the others not.

Transpiration of Leaves.

Von Pettenkofer, in the course of recent researches upon the amount of evaporation which takes place from the foliage of plants, ascertained in the case of an oak tree that this increased gradually from May to July, and then decreased till October. The number of leaves on the tree were estimated at 751,600, and the total amount of evaporation in the year at 539 cubic centimeters of water for the whole area of the leaves. As the average rain-fall for the same period was only 65 centimeters, the amount of evaporation is thus eight and a half times greater than that of the rain-fall. This excess must, of course, be drawn up by the roots from a great depth. The inference is derived from the above, that the trees prevent the gradual drying of a climate by restoring to the air the moisture which would otherwise be carried off by drainage.

The Vineyard.

Vineyard Work for August.

By the Associate Editor.

By the first of August very nearly all of our work should be done except tying up an occasional shoot or broken down cane and keeping the ground clean. The Hartford, Ives and Concord grapes usually ripen here by or before the 15th of the month, but this season, from present indications, they will be ripe by the 5th, so every thing should be in readiness to send them to market in good order.

The grape should be cut with care from the vines so as not to rub off the bloom, and all the green and decayed berries taken off at once, then laid in boxes of from ten to fifteen pounds each and sold from them without re-handling into other boxes, so they will retain their freshness and *bloom*. More depends upon the appearance of your fruit in commanding ready sale than in the quality of the fruit. As much judgment and care is required in marketing fruit as in raising it. Always aim at having the best and never glut the market is one of the secrets of successs.

Birds are sometimes troublesome, particularly the oriole to which we show but little mercy, for we know of no other remedy. They will destroy many grapes before you are aware, so if numerous commence a general slaughter in time.

Grafts still require tying up and watching. Cuttings and layers should be kept clean and well cultivated. If wine is to be made prepare a press and casks in season. But if you have a good market, better sell the grapes, as it requires extra skill to make good wine and but few possess it.

Heureuse's Air Treatment of Wine.

By A. C. Cook, Covington, Georgia.

Eds. Pomologist & Gardner.—Recently the attention of intelligent orchardists and grape growers have been called, in all favorable localities of the country, to the importance of fruit, grapes and wine, also to the *conditions* by which the quality and quantity of the product is improved. At least equal attention is due to the preservation of the fruit in such condition or shape as will secure the largest profit to those engaged in growing and preserving the article. A large proportion of the fruit is and will be shipped to the best advantage in the green state, the amount depending upon the locality and the means of transportation, at other places freight and incidental expenses eat up the profits to such an extent, that only the superior picked fruit warrants shipping, while the bulk of the product can with more advantage be preserved or benifited on the ground, either dried, or as liquid extract in a sirupy state, fermented as wine, cider, &c., or distilled into brandies. Either mode requires intelligent manipulation for successful competition, by reducing time, labor, freights and risk, and to produce the best marketable article.

Amongst the improvements, which of late have been brought before the public, is one that offers itself as highly useful in all the various processes enumerated—d' Heureuse's Patent Air Treatment, which employs the intelligent use of currents of air (or other gases) set in rapid motion by artificial means, as pumps, blowers, &c. This method, discovered in California, 1866, confronts and by undisputable proofs of its practical advantages annihilates the time, venerated prejudice against access of air as injurious, and proves conclusively what we find constantly enacted in nature, that confined or slowly moving air in contact with quiescent fluids or solid organic substances is fraught with injury, induces putrification, souring or decay, but that currents of *rapidly* moving air through fluids or solids prevents mold and decay of any kind, quickens and promotes, however, healthy alcoholic fermentation and the germination of all vegetation except destructive moulds and fungi.

To successfully compete with importation it is of prime importance for American Wine Makers, to reduce the cost of production, as well in the interest on capital invested as in the incidental expenses of storing the wine for years, by using proper modes to quickly make wine and impart *maturity and full stability* to it. The d' Heureuse's air treatment accomplishes this. The must, when pressed from the grapes and previous to fermentation is at a temperature of about 65° Fah., vigorously air treated

for about ½ to 1 hour, the air impelled into the must by a pump, blower, &c., through a pipe mouth piece or perforated bottom in the tank or cask. Gentle air treatment is employed periodically during fermentation, to accelerate and complete the same, which is conducted at a temperature of 70° at the commencement, rising to 80 or more as the fermentation increases, and can thus be finished in from 5 to 14 days. The wine is freed by this treatment from the albumenous parts (the cause of after fermentation and wine disease) and after clarification, which generally takes place very rapidly, the wine is equal in stability and maturity to wine treated in the usual way and stored for years; it is of ripe and fine taste and flavor, and free from ground taste, the usual companion of American wines.

Imperfectly fermented wine, or must partially fermented in the usual way are by air treatment quickly finished and marketable in a few weeks. Even slightly diseased wines, ropy, heavy or obstinately turbid, but otherwise free from acetic acidification, are by one vigorous air treatment, clarified in a few days and perfectly restored.

Wine men in general and others, not conversant with the aforesaid principle involved in the air treatment, supposed, according to prevalent ideas, that formation of acidity was inseperable from additional supply or access of air. Contrary, however, to this belief, it has been proved, that all wine made by *proper* air-treatment has *less* acid than wine obtained by the usual fermentation, by exclusion of air, from the original must. The celebrated French chemist Pasteur, made the same observation. Another observation of the same eminent savant, that must pressed from grapes under perfect exclusion from air will not ferment till atmospheric oxygen is admitted to it—caused Dr. A Blankenhorn, in Baden, Germany, to make experiments in the fall of 1867, by impelled air, which gave then and in the years following the best results; and as a consequence the process is already in general use in the best wine cellars of Upper Baden and other parts of Europe. Dr. Blankenhorn, the editor of the most prominent scientific journal on wine in Germany, the "Annaleu-der Oenologie," Carlsruhe, Baden, publishes in the same tables of systematically and carefully conducted operations by that process, which should dispel any doubt on the subject. According to these, a smaller amount of carbonic acid is evolved, and thus allowing for a considerable larger amount of the lees, more wine by 1½ per cent. results, compared with that obtained from the same amount of must by the usual fermentation (Ann. of Oen. vol. 1, page 218); the difference in proportion is much greater if the maturity is made the standard of comparison. Numerous testimonials from wine men in all parts of this continent lay before us, expressing in the highest terms their appreciation of the advantages secured by the air-treatment in making wines of all kinds. The manufacture of brandies from any kind of fruit is also greatly improved by the air-treatment; a larger amount of superior brandy results from mashes, fermented by this mode and by subsequent air treatment the spirits are speedily matured.

To preserve the liquor extracts of fruits, the juices are at a temperature above 150 deg., Fah., subjected to continuous and vigorously impelled air for some hours, this precludes all fermentation, the albumenous parts are oxidized, rendered insoluble and thus removed by skimming, filtering or settling. The juice, thus purified is no more subject to fermentation or souring by exposure to the air, and can subsequently be concentrated by evaporation to the required syrupy consistency, by which it may be shipped or kept in casks for years without injury. The drying of fruits is likewise improved by artificial currents of air through the compartments or kilns, in which it is performed. For the transportation of fruit, produce, meat, etc., in railroad cars or vessels, or to store them, narrow compartments are constructed in the cars, holds or rooms and intercommunicating one with the other, so that the currents of air, impelled by a blower into the first of the compartments, have to pass through the whole length and through the next and the whole lines of compartments in which the fruit or produce in crates or otherwise placed, piled on slat floors, or meat hung up. The currents of air will be thus compelled to play over all the commodities in the compartments. To counteract and destroy the effects of any putrifying agent, (funji) that may adhere to the fruit, produce, meat, etc., it is desirable, to have the air (in some instances) slightly impregnated with carbolic acid or other antiseptics in a gaseous state, not sufficient to communicate any objectionable smell or taste to the articles to be preserved. In this manner enormous losses by spoiling of fruit, produce, etc., will not only be avoided, but the trade in these commodities indused to an extent larger beyond comparison than at present with illy ventilated railroad cars, vessels and store-rooms.

Unfruitful Vines.—John Slope, of Michigan, writes the Farmers' Club that he has grape vines that blossom annually and do not bear fruit, while other vines near by do produce fruit. He asks if others have observed the same thing. Mr. Fuller says he knows a vine a hundred years old that always blossoms, and the bloom yields a sweet perfume resembling migionette; but it has never borne a grape. The fertilizing organs are wanting in the flowers and will not produce fruit.

Miscellaneous.

Comments on Sundry Topics.

By E. G. C., Burlington, Iowa.

CLIMATIC CONDITION OF IOWA.

Ed. Pomologist and Gardener: In your July number you publish an extract from a California paper, expressing great surprise that a rainfall in the summer months of 1870, reported by the Secretary of the State Agricultural Society as being 7.97 inches, 3.72 inches of which fell in July alone, should be considered as a drouth in Iowa, and asking for an explanation; this is easily given: There was no such amount of rainfall as the Secretary reports, either in May or July, 1870, nor *one* inch; nor any rain whatever throughout the entire month of July. I live only 50 miles from Secretary Shaffer, and know that he has made a great error in this report. No weather could possibly be drier than July, for there was not only no rain, but no dew whatever. The grass and soil were as dry as at mid-day. There was not one soaking shower from the time the frost went out of the ground in the spring until the drouth broke upon August 2d.

On the 27th of July, I broke up a small piece of ground and planted a peck of Peachblow potatoes as an experiment, all the early ones having failed, and those planted later looked anything but promising. The earth was as hard as brick and could not be broken fine with any implement in use. The fragments were scraped aside and the seed planted below them. Less than a week after, the rains came and made the experiment a complete success. The potatoes came up in a day or two and grew to a weight of a pound each. They had not ceased growing when the frost killed the tops.

The drouth of 1870 was the worst Iowa has seen since 1854. I planted wheat in September of that year when the ground was in the same condition as last year. There was no rain then from March 15th to September 27th.

The climatic condition of Iowa is very different from California. The latter State enjoys the sea breezes, which roll in for a hundred miles, and condense their fogs on the snow-clad mountain tops. In the centre of the continent, all our winds are arid. They have been deprived of their ocean moisture by more than a thousand miles of land contact. If we cannot get rains we cannot enjoy any dews.

EXPERIMENTS WITH POTATO BUGS.

Prof. Bessey's potato experiments, to be of value, require to be made by half a dozen persons in as many different parts of the State for a series of years. I have tried the same since 1866, the year after the advent of Mr. Colorado, and have found the Peachblow and Early Goodrich, for that many years, most impregnable to the bug, though both must succumb if there is no other forage. No remedy which has been named for this potato annihilator is equal to Paris Green or Arsenious Acid. These diluted with flour and scattered when the dew is on, certainly destroy them. In a small field planted with Early Rose and Goodrich potatoes, while the former will be covered with larva, the latter will scarcely have any.

For our rich soils, a moderate attack of potato bugs is not injurious, because the plants too often run to vine and leaf instead of tuber. Within certain bounds, they actually increase the yield, and to that extent are beneficial.

NON CULTURE IN VINEYARD.—GRATIFYING RESULTS.

Your Assistant Editor recommends frequent stirring of vineyard soils during the formation of seeds and juice in the fruit. Yes, if he certainly wishes to bring grape rot without fail. I begin to have the gravest doubts about stirring and cultivation at all in established well grown vineyards or orchards. A German who pronged up my vineyard this Spring called my attention to the vineyard of a neighbor of his, who in 1865 made 1800 gallons of wine, when no one else in the country made a drop. Her husband was ill all the previous winter and died in August. Caring for him caused the vineyard to be totally neglected except to tie up the vines, and the weeds grew as high as the fence. There were weeds there, it is true, but there were also abundance of grapes during a very rainy season, when nobody else had any at all. The afflicted widow made enough by this lucky neglect to pay a mortgage on her home and build a good house. There is certainly something in this. Foreign vine-growers coddle and nip, and pinch and pull our native seedlings altogether too much for their good. The labor is worse than lost. To obtain the best results, if you prong up the soil in the spring, (and I do not recommend even that,) never do anything more to it, except to keep the weeds from hiding the vines altogether.

FRUIT RESOURCES OF SOUTHERN IOWA.

Taking tea with a neighbor recently, displayed the resources of Southern Iowa. There were eight different dishes of summer fruits on the table; among them, cherries, cooked and uncooked, apple sauce, blackberries, red and white currants, etc.

Do you readers know that they gather the currant altogether too soon, and that its season is late in July? It is not ripe for a month after it colors. When ripe it is one of the most delicious and beautiful of fruits. There is nothing so hand some on a tea table as a saucer of red and white currants. Gathered when fully ripe, this fruit has lost all of its acid and becomes very pleasant.

WET WEATHER, VS. PLUMS.

Plums, like grapes, cannot bear wet weather.

The trees, though loaded down, are filled with rotting fruit, and the crop threatens to be a complete failure. After fighting the curculio all May and June, it is hard to see such results in July. But it cannot be helped.

Washington and Columbia are two fine plums, more proof than most others against curculio, and on that account especially, worth attention.

PEAR BLIGHT.—WHAT A MYSTERY!

What a mystery is pear blight! The more we study it the more tangled it becomes. We had a furious rain storm the morning of July 9th, before day, which flooded everything. When it cleared away several fine two year old pear trees were seen to be blighted to the ground. They were certainly all right the night before, and had grown with uncommon vigor this summer. Certainly not a case of frost blight. None of the old bearing trees were affected at all.

THE CODLING MOTH.

Thus far the codling moth has let us alone, and failed to put in an appearance. Why? Can any one say? Our apple crop is light, but uncommonly fair—the pear crop heavy, and in the most splendid condition I ever saw it at this season. With all our other insect invasions, this pest is of the most serious, and one which we gladly dispense with.

WHY PLANTS GROW.

Your Associate Editor is certainly right as to why plants grow. There are two forces in nature—centripetal and centrifugal. One gathers, the other scatters. One composes, the other decomposes. These forces are undoubtedly electric—positive and negative.

PLANTING CUTTINGS.

Planting currant cuttings should always be done in Autumn. Almost a year's growth can be saved by this practice. The list of plants which may be grown from cuttings in Iowa is not very large, and is yearly being made larger. All of these, to insure success, should be taken off in fall, buried all winter, and set out the first thing in spring. A sandy soil is always best for cuttings, not too rich or mucky.

Fruit—What Shall We Do With the Grapes?

Ed. Pomologist and Gardener.—It is not pleasant to be conscious of a duty and at the same time realize that one is neglecting it. But such is the condition of all who have "too many irons in the fire." In this new country where so much property, simply awaits appropriation, where so many metaphysical pigs are running about with forks stuck in their backs crying "who'll eat me," we are all apt to seize upon more than we can properly manage. We have too much to do, and much that we undertake suffers for want of attention, besides, we have no leisure to give our experience for the benefit of beginners.

Fruit prospects are not such as to make us boastful, save in grapes. The season thus far, since February, has been very like last year—Spring very early, two or three weeks ahead of the average—Heavy freeze about the tenth of April, when buds were just ready to open—Many kinds of apples almost totally ruined. That the Early Pennock, Maiden's Blush, Roman Stem, Yellow Bellflower, and such others as put forth very early, should be severely injured by the freeze, we were prepared to expect, but were surprised to find such hardy, late blooming varieties as the Jannette and Tollman Sweet, so seriously damaged. These last blossomed out all right, but soon afterward, the twigs and clusters of bloom blighted and turned black worse than on any others. The Early Harvest, Red June, Winesap, Jonathan, Willow Twig, and Ben Davis are about one-fourth of a crop. Cole's Quince, and Golden Sweet a little better, Rambo, both white and red, also White Winter Pearmain pretty full. Had the last been a new candidate for favor, the last and the present season would have made it a reputation, though we cannot forget that some years it has terrible blemishes, yet in this section it has proved one of the best and most reliable of winter apples. Codling Moth provokingly abundant, in spite of speckled woodpeckers.

Grapes are overloaded—what shall we do with them? For one, I feel as if I had caught the elephant and did not know how to let him go. In the first place, inspired by the glowing words of C. W. Grant and N. C. Meeker, I not only set out too many, but I set them too close—4x6 feet. It is useless to try to confine any of our free growing varieties within that space. Until last year I tried to dwarf by close pruning, but that won't do. If you have but few canes in the spring they will branch and grow all the farther and as the new shoot sets but two to four clusters of grapes, the vine spends its energy in making wood to be pruned away again. Last year I determined to check this useless extravagance, and left *plenty* of wood. And now—well, most readers of the Pomologist will know what I mean, when I say they are *loaded*. If they were not some three weeks earlier than usual, I should have little hope of their ripening. But suppose they ripen—what then? There are others plenty in the neighborhood to supply our limited market, and they will not bear shipping—Wine? "Who hath redness of eyes?"—Radical temperance. But I cannot see them go to waste—I guess I will make *vinegar* of them.

B. C.

Adel, Iowa.

Blackberries—The Kittatinny.

Among wild fruits—especially those of the Eastern States, the blackberry stands pre-eminent. But, strange to say, as long as it has been known, and much as it is esteemed for its excellence when gathered from the bushes growing spontaneously, its introduction to the garden, and attempts at improvement are comparatively of recent date. Unless our taste has become sadly demoralized, but very little progress has yet been made towards the improvement of this valuable fruit; for, so far, not one of the many sorts introduced to the public as new, is any improvement upon the thimble shaped blackberry we used to gather forty years ago from the fields and forests of New England—unless it may be the Kittatinny. Some years ago the Massachusettes Horticultural Society offered a very liberal premium for a seedling blackberry, that should be adjudged by a competent committee superior to the best known wild sort, but we are not aware that one single claim has ever been put in for the prize.

The first step made in blackberry culture worthy of mention was with the Lawton, but which for this latitude has been found wanting in two most important essentials—quality and hardiness. We now have under trial upon our grounds, the Lawton, Dorchester, Duncan's Falls, Missouri Mammoth, Wilson's Early, and Kittatinny. Of the six, Kittatinny promises best. We find it a rampant grower and very hardy, while for fruitfulness it bids fair to outstrip all its competitors. We have recently examined two year old plants in one or two gardens near us that have gone through the last two winters quite as well as the Doolittle raspberry, without the slightest protection, and which now present a fair show for fruit. The latter part of May we put out about seventy plants of the Kittatinny, the remnant of last Spring's sales. The plants were taken up the previous Fall and heeled in for the winter, and were mere culls. They have made much stronger growth than any other sort planted at the same time, and in many cases fruit bearing canes have pushed out from the old stubs, on which are well developed specimens of fruit. We have had under trial the Lawton and Dorchester for some years, and find both too tender for profit, and even with the *best* of winter protection unsatisfactory in fruitfulness. A blackberry that will do as well in this climate as the Doolittle raspberry, will be hailed as a great desideratum in the line of small fruits; for *it* would follow the Philadelphia raspberry—thus prolonging the season of small fruits through the hottest weather of our hot summers. We are hopeful of the Kittatinny to supply all that could be desired in that direction.

Palms on San Bernardino Mountain.—The The Angeles *Star* (Cal.) says it is not generally known that a species of native palm grows luxuriantly in the canons on the eastern slope of San Bernardino mountain. It bears a small black fruit of a sweetish taste, which is highly prized by the Indians as an article of food. The fruit grows in a single cluster, about the size of a bushel basket.

Fruit in Washington Territory.—The Willamette Farmer says many orchards are being set out in the Walla Walla Valley, and thinks that section destined to be one of the finest fruit growing sections on that coast.

☞ Butterflies have been found flying at sea, six hundred miles from land.

Horticultural Notes from Florida.

Ed. Pomologist and Gardener: Your readers will recollect that in the June number for 1870, I stated that "it was as easy to raise apples in Florida as to raise persimmons in North Carolina." I still think so. The Red Astrachan tree on the Haw I at that time alluded to, is now four years old from the graft, and this season bore nearly five hundred good apples. I now have on the Haw nearly every well known variety of summer apples. But for this climate I prefer the Astrachan.

The Bartlett pear on the Haw promises to do as well as the apple. It also does well here on the quince. I gathered some last month that were very fine. The trees on which they grew were only two years old from the graft. Standard pears do not promise much.

The peach is at home here, and I have no hesitation in advising the growing of it extensively. I have nearly 3000 bearing trees three years old, and from which I commenced shipping fruit on the 8th of May last. I realized on the first sales $1.00 per dozen.

For my success in grape growing I herewith hand you a slip cut from the *Land Register*, published in this place.

"The readers of the Register will remember that in the May No. of 1870, we gave an account of these Nurseries. As we drew near the house we could not but be impressed with the great change in the vegetation that one short year had wrought. Tree and vine and shrub had attained a size that seemed marvellous.

As our readers know, the Colonel's theory is that the grape requires greater protection from the sun than its own foliage affords, and so places his vines under his fruit trees. As novel as the theory may appear, the results seem, in some respects to justify it. The bunches were large, free from blemish and very fine flavored.

The Colonel has all the usual varieties, together with several we have not observed elsewhere. The Golden Chasselas and Black Hamburg were very fine. Think of the Black Hamburg, that tender pet of Northern conservatories, growing in the open air, without even a mosquito netting over it through the winter, and hanging with fruit nearly ripe the 23d of June. But we must have a look at our old friend the Scuppernong.

Four years old from the slip, it covers now a lattice work sixty-five feet long, eighteen feet wide, and running up at one end nearly thirty feet; a mass of vine almost impenetrable to the sun's rays, and filled with fruit."

We were never so hopeful of the prospects of Florida, as a fruit country, as we are to-day. Here, upon our sandy soil, so often the subject of ignorant and unjust aspersion, we find growing, without protection and with a minimum of cultivation, the most delicate varieties of that peerless fruit, the grape, and yielding to the grower, within a time of two or three years, a rich return for his labor. In no other land upon the continent, except the lower Pacific coast, can such results be obtained. That it has not been done before, is owing to causes that need not be explained. It is enough to know that the initiative has been taken and the first results obtained in the highest degree satisfactory. No man in Florida is so poor that he may not sit under his own vine and fig tree. What the future may bring forth no man knows, but we prophesy that before many years, the vast interests of the grape growing region upon the Pacific coast will find a rival in our own favored State."

L. A. Hardy.

Jacksonville, Fla., July 3, 1871.

The Wood-forming and Fruit-producing Forces.—Their Relation to the Art of Pruning.

Hitherto, in the pomological world, no Newton has appeared to weigh and balance the forces which stand at the head of this article, nor has any Keplar undertaken to interpret and reduce to writing the laws by which those forces are governed. But, for all this, there is no denying the fact that in fruit trees (to say nothing of the rest of the vegetable world) there is a force or power to produce wood, which may, by artificial means, be stimulated to increased vigor or enfeebled even to debility.

Indeed, so long ago as 1780, fruit and even forest trees were stimulated to increased wood-formation by the operation of heading back, although it appears the operator knew so little of the law which governs the action of this wood-forming force as to ascribe his success to the covering of the wounds made in pruning with a thin coat of cow dung and clay, instead of imputing it to the operation itself. This fact in the history of the art of pruning we gather from the report of the operator to the Commissioners of the Land Revenue in Great Britain, which in substance states "*that the operator by cutting out the diseased* and dead wood, (that is, by heading back,) had succeeded so well as to have more fruit in two and three years than a tree newly-planted will produce in thirteen or fourteen years." In more modern times, every author on pruning recognizes the power of stimulating to increased wood-growth, by heading back or shortening in, and Downing, among the first of authorities in giving the *rationale* for the process of pruning to promote wood-growth, furnishes a key for the proper time of pruning for that object. He says: "If we assume that a certain amount of nourishment is supplied by the roots to all the buds and branches of a tree, then, by cutting off one-half of the branches at the proper season, we direct the whole supply of

nourishment to the remaining portion, which will consequently grow with nealy double their former luxuriance."

By this mode of reasoning—and we believe it is founded on truth—the operator, in pruning to stimulate the wood-producing force, must perform the the process at some moment when the amount of nourishment supplied by the roots for all the branches and buds has not been diminished by the action of the buds and branches to be amputated; that is, some moment after the sap is matured in autumn, and before the buds burst in spring, governing himself in each case as to time by the ability of the tree to resist the action of inclemency. That is, upon the hardy apple and grape he may operate at any time during winter, but the more tender peach and cherry will be less likely to suffer if left untouched till early spring. That heading back in spring stimulates to a more vigorous growth is now become an axiom in tree culture, and the nurseryman, with peach trees unsold, cuts them back to stumps with a single bud, conscious that in the fall he will have better trees than those not cut back.

The grape-grower with a wiry shoot of two feet in length and twenty buds, cuts back in spring to a single eye, and from that eye grows a bearing vine. The hedge-grower, anxious to form a base to his live fence, cuts back his plants in spring, and, if he deals in suitable plants, is rewarded by fall by the possession of half a dozen or more shoots for every one cut down, each new shoot larger than the one it stands in place of.

In explaining the rules of practice which ought to govern in pruning to stimulate the fruit-producing force, it is only necessary to bear in mind that these two forces are antagonistic, and that whatever strengthens the one beyond that state of equilibrium which is the result of normal health, weakens at the same time the opposite or antagonistic force. Suppose we have a case in which the supply of food furnished by the roots is more than a normal supply for all the buds and branches, and there is in consequence a continued tendency to form wood and not fruit buds; the only remedy in such a case is to diminish the amount of nourishment supplied to do which the system of roots must be made smaller, and limited to pasture grounds of narrower dimensions. This is done by root-pruning, a process in which a circular trench is dug around the tree some twelve inches deep, and the large roots cut off at a distance greater or smaller from the body, dependent upon the size of the tree and its luxuriance of habit. An amputation of about one-third of the whole length is probably in most cases sufficient. Heading back and shortening in are not the only pruning processes that tend to stimulate vigorous growth.

Fruit spurs are all at the expense of the wood system, and the removal at any time by the pruner of those in excess, or of small branches which have ceased to make annual wood-shoots, is to relieve the the wood-forming system from undue taxation. Except this slight cutting, we are of opinion that no other summmer pruning can be indulged with the apple and pear, except the removal of a water sprout or cross branch, without diminishing the order of assimilation and lessening the amount of nourishment for next year's growth, which is the opposite pruning to induce wood-growth.

In practice, also, there are several other processes which the operator may bring to bear in aid of root-pruning when trees too vigorous in habit are to be brought into bearing. Pinching the young shoots, so as to bruise the points and prevent further elongation, is one, and this seems to paralyze wood-growth and tend to fruitfulness. So also does stripping off the leaves in midsummer after the annual buds are formed. We remember once to have witnessed an occasion where excessive rains in August caused the cherry and pear trees to cast their leaves, and that among them were spice pear trees headed back, which were covered with annual shoots in this manner stripped of their leaves; and we remember that in the genial weather of September these same spice pear trees seemed to undergo a fall growth, throwing out a small tuft of leaves at the points of the annual branches, the wood buds along the whole branch swelling and undergoing a conversion into fruit-buds, which studded the branches with pears the following season, giving the appearance a good deal of a rope of onions.—*Western (Ky.) Ruralist.*

Club Footed Cabbages.—We have never seen a club footed cabbage at the West. On the old grounds of New England the cabbage grower often experiences serious difficulty from this cause. As a remedy, the *Gardeners' Chronicle* recommends an application to the roots of the young plants of the following: "One gallon of fresh soot and one pound of saltpeter reduced to a powder and mixed with water to the consistency of tar. The root of every plant is dipped in this mixture before planting." This plan is said to be perfectly efficacious.

Fruit in Fern Leaves.—In England and France dried fern leaves are used very extensively for packing fresh fruit, grapes especially; they seeming to possess, to an unusual degree, the property of preserving vegetable and even animal substances for a long time.

Saving Flower Seeds.—The seeds of such flowers as are liable to be scattered and lost to the raiser, as the pansy and flox, for instance, may be kept for use by tying a bit of muslin around the seed-bud before it ripens and opens.

Scraping Apple Trees.

By J. S. Needham, West Peabody, Mass.

We hardly take up a work on horticulture, or even an agricultural paper, without seeing an article advising scraping apple trees.

My orchards are from ten to sixteen years planted, and until within three years I always scraped the bark in the spring or midsummer. Now for the results. I often found small patches of bark, about the size of a finger-nail, discolored, having the appearance of being sun-burnt; on applying a knife, cutting dry and hard,—dead to all appearances. Now my trees look like a shagbark hickory, all the old bark hanging by a small part in the middle so loosely that it can be taken off by the thumb and fingers better than with a scraper. These little pieces of bark, about the size of my hand, act as a perfect sun-shade for the tender new bark underneath, which is smooth, thrifty, of a pale brown color, with no more indications of diseased portions in it, than is found in the bark of a maiden tree of the same variety.

I have never allowed grass to grow under my trees. I feed them well, keep the soil mellow, shoe deep, all through the growing season, with a small harrow made for the purpose, with five (of Ford's) teeth, that will not catch the roots, drawn by two horses, the driver riding on a seat so as to shun the fate of Absalom among the limbs, the horses going at a quick pace. One day will do up four acres, going both ways, leaving the soil, if dry, light and friable, and as porous as granulated sugar, five inches deep.

A horse may be groomed until doomsday, but if he does not have good food, he makes a sorry figure, and is unable to work. So with an apple tree; it may be scraped and washed, but if it don't have food and culture, it soon becomes a painted sepulchre, a receptacle of the labor lost trying to coax Nature to violate her great immutable law of compensation.

Some theorists entertain the idea that the elements necessary to produce a good crop of apples are deficient in the soil of late years. Is not the law of compensation violated? If we draw off the yearly crop, can we replace all the elements in the soil by manure, unless that manure is made of that kind of material? The inquiry has often been suggested to my mind, while rambling through woods, where no cattle roam, why is it that those apple trees found among the woods are such constant bearers? Is it because all the fruit, perishing, leaves all its organic and inorganic elements to pass into the soil as food, to be taken up by the tree to make its crop? The fairest apples I grew last year were on a tree under which a lot of cider apples rotted the year previous. The original Fall Harvey tree sprang up and grew (in this town) within six feet of a cider mill; it yielded yearly great crops. After the mill was removed from the building, the tree commenced to fail, and is now gone. Had the elements of the acids anything to do for these trees, or were they accidental circumstances?

I have a lot of pomace from five or six thousand bushels of apples, that I shall mulch a part of my orchard with next June, after my second harrowing. As a manure for grass, or any hoed crops, it is worthless.

This matter may all be crotchet, a whim of my brain; but I am going to give it a good trial, and perhaps may report the results to you some future time.

I know it is getting out of the old rut, but the old ruts are so very deep there is no prospect of success in pulling in them. When the hub rubs it is time to look at your *ways*. I have fought the battle, won the trees, and good ones too; now I want the fruits of the victory.—*Journal of Horticulture.*

Blight and Insect Composition.

Some of our townsmen, with myself paid $50 for a blight composition, but I do not think it is equal to the following. My mode is:

24 ozs of Salt, fine or coarse.
5 ozs. of Copperas.
3 ozs. of Blue Vitriol.
1½ ozs. of Saltpetre.
1 or 1½ ozs. of Oil of Vitriol.
1 lb of Babbit's Concentrated Lye.
5 lbs. of hard soap, or 1 gal. soft soap.

Take an old iron pot, and put in the salt, with a sufficient quantity of water, then heat. Pound up the Blue Vitriol, then the balance of the compound; if too hard, put in lard or harness oil, until it is thin enough to brush on Clean the roots of the tree, and cut out the borer; have a small brush something like a marking brush, and cover the wound. Then take the body and limbs. On the largest parts of the body and limbs I use a very small whitewash brush, 4 to to 5 inches wide, and not very thick. This will make the varnish regular, and kill every insect. To every man that owns an orchard, it is invaluable. I have some 3000 pears and 1000 to 2000 apples, plums and peaches.—*Cor. Gardener's Monthly.*

Cherry Tree Bark Bursting.—The cherry tree is naturally a rampant grower, and is stimulated by a soil too rich, or by high culture, is liable to burst its bark and ooze out a gummy substance, from the effect of which the tree must perish sooner or later. In the growing of cherry trees in a light loose soil, the less it is stirred the better—nothing more than surface scratching to keep the weeds down and the surface loose.

The Vegetable and Flower Garden.

Work for the Month.

The work for this month differs but little from that of July. Budding should be attended to without delay. The amateur and farmer with but few buds, comparatively, to set, should choose cloudy days to do the work. Not so with the nurseryman, he cannot choose his days, his superior skill must atone for the *unfavorable* days, which of *necessity* he must devote to this purpose.

For buds, choose thrifty shoots, upon which the terminal buds are formed, using the middle buds, rejecting those at the base and top. Examine the buds set last month; remove bandages from such as have become united and re-work such as have failed.

Keep potatoes and all other root crops free of weeds. All root crops should be well worked this month. Nothing adds so much to the growth of vegetables as frequent stirring of the soil this month. Potatoes should not be worked so deep as to disturb the roots, but the surface should be kept light and loose. Cabbages cannot be worked too much if we would have good heads.

Earth up Celery, sow Endive. Extra early peas sown early this month will afford good eating. The Black Spanish and Rose colored radishes may still be sown.

Save garden and flower seeds as they ripen. Do not let them stand till *dead* ripe. Better cut the plant when seed is fairly out of the doe state. Gather herbs, dry in the shade till fairly cured and then pack them in tight paper—each package labeled so as to readily put the hand on any one sort when wanted.

Keep the strawberry bed free from weeds by pulling or very shallow hoeing—taking care not to disturb the newly set runners.

Keep an eye on the insect tribes. This of all others is the month for the Fall Web worm. Turn to the entomological department and read of it and then go out and look for it among your orchard trees; and last, but by no means least, get those nice vegetables and fruits ready for the State and County fairs.

The Vegetable Garden.—Laying Out.

By W. H. W., Hartford Co., Conn.

Ed. Pomologist and Gardener:—It is always advisable to have a plan to work by, and to make this plan in advance at leisure often saves time, and allows of a more perfected and orderly arrangement of the whole garden. Our advice then is, after deciding upon the garden spot make a plan of it, and lay it out, arranging for all annual, biennial, and perennial plants, as also all to be grown on every part, just the amount of each variety, proportioning according to the size of the garden, and the desired quantity of each variety.

The vegetable garden is supposed to be devoted to the production of vegetables exclusively, but with most something else will generally be introduced in some part, but fruit ought to have a separate place hwere it can have special culture and care; yet often currants, gooseberries, raspberries, strawberries, etc., may be appropriately included under the same enclosure, without at all interfering with each other; but no tree fruits should be tolerated, as the trees cause shade and rob the vegetables, etc., of their just dues; and for the full developement of vegetables free sun light is essential.

The most desirable shape for a garden embracing one half to an acre, is a paralellogram, or oblong square, twice as long as wide; longest way east and west, thus giving the ground and crops the largest amount of sun, and a long warm border furnished under the north fence; a long cool border under the south fence; and by this shape a further advantage is derived in having a larger portion of the whole sheltered, during winter and spring from cold and bleak winds.

A permanent walk through the center should be made, four to six feet wide, and temporary cross walks wherever squares, beds, etc., are introduced. These may be about three feet wide. In a large garden it is advisable to plant in rows, so as to cultivate with the horse as much as possible; this requires larger plats of ground for the corn, potatoes, vines, etc. In making the paths do not dig out at all, but stretch the line on either side, roll and tread the paths hard and solid, giving a slight round-

ing to the center to shed water. Beds for asparagus, rhubarb, and other perennial plants, should be in some quarter where they can remain permanently, and have their rows run north and south; and wherever convenient, rows of corn, potatoes, etc., should run in the same direction; but in beds of smaller growing plants, the direction the rows run is not so essential.

To the art of laying out we need the aid of a reel and line, measuring rod, hoe, rake, roll, spade and wheelbarrow. Where we wish to grow different varieties of corn, squash, and other like plants, where the fruit, etc., is liable to mix, they should have separate plats, as far distant as possible. In laying out plan so as to give the more tender plants, as well as those desired for earliest maturity the most protected and warmest portion of the garden and soil. As every garden spot and location must have a special plan according to various requirements, the most we can do here is to deal in generalities to be applied according to the best judgment of each operator; could we know just the aspect, capabilities, etc., of every garden spot, and the plants the proprietor desired to grow, then we could give special directions. While taste and good judgment are to be recommended in laying out a vegetable garden, ornamentation is not actually required, except so far as may be for greatest convenience in cultivation, etc. Yet, who is there but would rather see some simple, tasty ornamentation even in a vegetable garden, which may be done at no greater expense than the plainest work.

Arranging Cut Flowers and Keeping Fresh.

The first thing to be considered in arranging cut flowers is the vase.

If it is scarlet, blue, or many colored, it must necessarily conflict with some hue in your boquet. Choose rather pure white, green, or transparent glass, which allows the delicate stems to be seen. Brown Swiss-wood, silver, bronze, or yellow straw conflict with nothing. The vase must be subordinate to what it holds.

A bowl for roses. Tall-spreading vases for gladiolus, fern, white lillies, and the like. Cups for violets and tiny wood flowers. A flower-lover will in time collect shapes and sizes to suit each group.

Colors should be blended together with neutral tints, of which there are an abundance—whites, grays, purples, tender greens—and which harmonize the pinks, crimsons, and brilliant reds into soft unison.

Certain flowers assort well only in families, and are spoiled by mixing. Of these are balsams, hollyhocks, and sweet peas, whose tender liquid hues are as those of drifting sunset clouds. Others may be massed with good effect. In arranging a large basket or vase it is well to mentally divide it into small groups, making each group perfectly harmonious with itself, and blending the whole with green and delicate colors. And, above all, avoid stiffness. Let a bright tendril or spray of vine spring forth here and there, and wander over and around the vase as it will.

The water should be warm for a winter vase—cool, but not iced, for a summer one. A little salt or a bit of charcoal should be added in hot weather, to obviate vegetable decay, and the vase filled anew each morning. With these precautions your flowers, if set beside an open window at night, will keep their freshness for many hours even in July, and reward by their beautiful presence the hand which arranged and tended them.—*Scribner*.

Concentrated Vegetables.

The general attention that has of late years been paid to the preservation and concentration of articles of food, continues to issue in new and occasionally valuable processes; though many of those put forth turn out on trial to be either wholly useless, or quite impracticable save in the hands of such as have been specially trained to their management. In which category the following process for the concentration of vegetables is destined to fall has yet to be determined. The aim is to put the solid portions of vegetables in such a shape that they may be readily preserved, and easily prepared for use when wanted, at the same time reducing their bulk and preserving their flavor.

The way this is attempted in the case of potatoes will serve for illustration: After being thoroughly washed, the potatoes are boiled until done and their skins removed. The potato is then divided into fine vermicular particles by mechanical means, and while in this state the water is driven off by exposure to heat. The material is left in a condition much resembling rice, and in this shape it may be ground to flour if desired.

The extract of potatoes prepared in this way can be used for making soups and other dishes; and by adding boiling water, a dish in every way resembling mashed potatoes, cooked directly from potatoes in the ordinary manner, is obtained, but, it is said, of superior flavor and quality.—*Galaxy*.

Death from Mulberries.—Five persons have recently been found dead in Mississippi under mulberry trees. Death in all these cases has been attributed to eating mulberries which have been impregnated by locusts. In the stomach of one colored boy, says the Woodville *Republican*, was found a quantity of mulberry seeds and the locust eggs. Two children in Wilkinson county are also reported to have died from eating plums similarly impregnated.

Entomology.

Dr. S. H. Kridelbaugh, Editor, Clarinda, Iowa.

The Fall Web-Worm.—Hyphantria Textor—Harris.

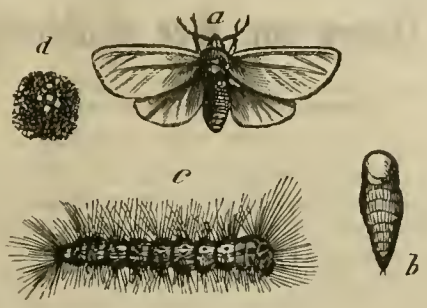
Ed. Pomologist and Gardener:—I enclose a currant leaf and moth that was apparently in the act of laying when captured. A few days since I found similar eggs on an apple leaf.

D. M. Dimmick.

Onawa, Iowa.

Remarks.—This lepidopterious insect is one of three which are all taken for the Tent Caterpillar of the orchard, viz.: The Tent Caterpillar of the orchard, (*Clisiocampa Americana*); the Tent Caterpillar of the Forest, (*Clisiocampa Sylvatica*); and the Fall Web-Worm, (*Hyphantria Textor*) all of which spin thread and form web from the time they are hatched until they are ready to pass into the third insect condition, the pupa state; but their habits in this particular are different. The *C. Americana*, spins its tent in the forks of limbs of trees, and leaves its tent to travel over the trees for food, the leaves. The *C Sylvatica* spins its tent on the sides of large limbs and the body of trees, and leaves the tent in quest of food, while the subject of our present article spins its tent around the leaves upon which it feeds, in the forks of terminal limbs of trees and shrubs, and never gets outside of its nest until it is full grown and travels to find a favorable place to pass through the pupa state in. Another marked difference is that both of the *clisiocampæ* hatch from eggs deposited in bands around the small twigs in June and July where they remain through winter until the following spring. The *Hyphantria Textor* hatches from eggs deposited the last of June and first of July on the leaves of trees and shrubs where they do not winter in the egg condition, but soon become living larvæ and complete that part of their existence and pass into the pupa state, in which state of rest they pass the winter. Another difference is the *C. Americana* and *C. Sylvatica*, in their perfect state are reddish-brown moths, (with markings to distinguish them apart,) while the *Hyphantria Textor* is a white moth.

In the illustrations, *a.* is a drawing of the moth you sent, and her nest of eggs, natural life size, this engraving being made from a photograph taken from the leaf and insect you sent on the 28th of June, on the 30th day of the same month. The nest of eggs has the appearance of white down—like very short cotton—glued to the leaf through which, here and there, protrudes an egg shining like greenish yellow bubbles of water, of the size shown by the white dots in the egg nest at *d.*



During July and August, in our latitude, these eggs begin to hatch and the young worms (larvæ) from the time they move until full grown, spin a thread forming a web on the terminal branch of the twig where the eggs were, and are usually deposited on the favorite leaf by the parent insect. At first the web only covers one leaf, but as the pulpy portions of the leaf fails to furnish their voracious appetites they extend their area and take more in until they are full grown, never traveling out for food. "When young, the worms are pale-yellow with the hairs quite sparse and with two rows of black marks along the body and a black head. When full grown they generally appear pale-yellowish greenish with a broad dusky stripe along the back and a yellow stripe along the sides, and they are covered with whitish hairs which spring from the black and orange-yellow warts."—*Riley*. When full grown the worms are about one and one-fourth of an inch long, a good idea of which is given at *c.* As this insect is so variable in its food, the depth of coloring and markings is also variable. It feeds on almost all kinds of trees and vines only sparing evergreens, Ailanthus, Sumachs, and grape vines.

Before cold weather comes the larvæ is full grown, and seeks shelter, either in crevices of bark or similar sheltered places above ground, (Harris and Fitch,) or bury themselves just under the ground, (Riley,)and form their cocoons and pass into chrysalis *d.* "of a very dark brown color, glaborous and polished and faintly punctured, and is characterized by a swelling or bulging about the middle."—*Riley*. In which condition it quietly spends the winter.

During the months of May and June the white, very slightly fulvous shaded moth emerges; "it has immaculate wings, but the front thighs are tawny-yellow and the feet blackish; in some, the tawny thighs have a large black spot, while the shanks on the upper surface are rufous; in many all the thighs are tawny-yellow, while in others they have scarcely any color."—*Riley*. See fig. 1, at *d.*

At the south this insect is probably two-brooded, but with us it is only single brooded.

As these worms never leave their webs until full grown, the best means of destroying them is to cut off the twigs as soon as the webs betray them, and burn all up.

Notes on Bee Culture.

Stopping Swarms of Bees.

By S. J. Parker, M. D., Ithaca, N. Y.

Ed. Pomologist and Gardener: I never had but one swarm of bees to stop in the fifteen years I have kept bees. I never lost a swarm by its coming out of a hive after hiving and going off; and I owe it to the fact that I use no molasses, saleratus, salt or other *dirty things* in my hives. I do not allow any noise, nor confusion of any kind, as tin horns, bells, looking-glasses to imitate lightning flashes, throwing of dirt, or stones, or other *nonsense* when a swarm comes out. My silly neighbors often drive, by tin pans, *dirty daubed* hives, horns, bell ringing, and all that *little boys' play* work, away or to my grounds; but I order it stopped, and more than one swarm has been driven to my grounds to alight by these absurd things. Talk of frightening a swarm of bees! in this enlightened age! Why don't you frighten Lake Michigan or the Mississippi River, or a thunder shower by stones, dirt and tin horns? No; keep still, that is the best way to control a swarm of bees. I have from ten to thirty swarms a year. *Not one has ever gone off two hundred feet from the hive it came out of before it lit.* The old coots, that drum tin pans and blow horns and all that, can't say as much. They chase with their *unwise din* bees all over their own and neighbors' lots often.

Next, I give *only clean hives*, kept in a *clean dry garret* of my house, to a swarm. No mouldy, dirty, damp, old clatter-trap hive, made as *nasty* and *repulsive* as can be to the bees by salt, molasses, *stinking* (to the bees) mint, whiskey, (a deadly poison to a bee), or other, to the bees, *nauseous* disagreeable things. Hence a swarm, with me, once in a hive, *always stays*, with only one variation. In fifteen years not a swarm ever has left my hive, except two. First, the Queen got under a stick used to hold the hive up and was killed. The swarm was restless at sundown and dark, making a moaning noise. At daylight the next morning they came out, and went back to their old hive, where I found the dead Queen under the stick. So they left not because of any *go off* to the swarm, but because they could not survive without a Queen. Second, a swarm was hived by me last year. They left the hive at about ten o'clock the next day, and went back in the old hive, and I found three dead queens, probably all stung to death by each other, in their fight for the queenship of the hive. So I say, no man need loose a swarm, or have a fear of the loss of one by their going off. *He is to blame* if he loses one in a hundred swarms.

Next, *I handle my bees rudely when hiveing them.* I am as still as a mouse until they light, then I take my stillness off—yet, I do nothing intentionally that shall endanger a queen's life. How, then, am I *rude* to them? First, I do not put them gently into a hive turned upwards, because then they might not *get the idea* they had left their lighting place. No; I put the hive on two sticks, a little ways off—a foot or two—and shake them down on a flat space in front of the hive, *a little roughly* for the *purpose of letting every bee know that they are off of their lighting place.* If they do not begin at once to go *in buzzing*, I take a flat shingle, dust pan or dipper, or flat stick and gently take up a pint or so of them, and shake them quite hard down by the entrance to the hive, so that they shall see it. If half of the swarm go in, and the rest are slow about going in, why, I tell them to *hurry up*, that's all, by sprinkling a little water on them, or by taking up a pint more, and shaking them all over those that are quiet. If they crawl up the sides of the hive, or on top of it, I am not as gentle in sweeping them off as I might be. When I first began this, I often got stung, but I work it so as to *hurry up* the bees and do not get a sting. Much lies in the way this is done, and the immovable nerves one learns to have by practice with bees.

Again, I take my hived swarm, in ten to fifteen minutes to their permanent stand, that is in ten to fifteen minutes after I shake them off of their lighting place. Sometimes this cannot be done so soon —*but do not let them stay over a half hour off of their permanent stand.* If any bees are in any quantity on the outside of the hive, I brush them off on the ground about their permanent stand. They have no business out of the hive, and I let them know it. I also immediately take the hiving cloth away, or in a few minutes, and shake any bees on it, on the ground in front of the new hive, and adjust the hive entrances as they are always to be. Lastly, I never allow the least sunshine on the hive for twenty-four hours before hiving bees, or for three days after they are hived. Then I let the sun shine on day by day a little, until all that naturally falls on the spot, strikes the hive.

Now I would not thank any man, *unless he has better reasons than I*, for any better or surer way to hive bees. You see, Mr. Editor, that I have put a good deal of good natured *snap* in this article. The truth is, I have stopped this gold pen, that has a pretty sharp irridium point on it; and has stung many a man a hundred or a thousand miles off, as well as caused tens of thousands to be pleased. I have stopped it for a few minutes now and then, to get as irritable word as I could think of. For I am so tired of these writers on bees, that want a good "braying in a mortar" that their "folly may depart from them," that I have let my gold pen loose in this article, while I have been laughing at these

stupid, "never able to learn or come to the knowledge of the truth," bee men. Oh! Dear! what tiresome dummies they are! They want sound spanking, like naughty little boys! Swarms go off? Shoo! Swarms leave their hives? Bah! Molasses, tin pans, dirt, looking-glass flashes? Scat! Go on the next ten years, ye clap-trap clan! Let all the world learn something, *except you*;—dear weak minded cripples!! Yet while I thus giggle and laugh, in the merriest fun, let me soberly say that of all men who keep bees well, and who perfectly understand bees, are your intelligent western men. What you western men don't know in bees, in house building, and in making the prairie blossom as the rose, is not worth knowing. It is the stupidity of eastern traditions, as they corrupt the high-toned noble western mind, that I ridicule.

How to Introduce Italian Queens.

S. W. Cole, Andrew Chappel, Tenn., in a communication to the *Practical Farmer*, gives the following directions for managing Italian Queens:

"Since the introduction of Italian bees, there has been a great many ways devised to introduce Italian queens into colonies of black bees. We have tried almost every plan and have generally been successful, but have sometimes failed and have lost valuable queens. The plan which we generally follow is this: Make a queen cage by taking a piece of wire cloth about four inches square—having about sixteen meshes to the square inch—and roll it around a round stick, about half an inch in diameter, fastening one end by hammering the edge of the wire cloth together. The black queen is now removed from the hive and her head pinched off, and the Italian is placed in the cage and then the end of the cage is securely stopped with cork or a hard piece of wax. It is now put between two ranges of comb containing brood, so that the bees will cluster on the cage and keep the queen warm, and is so placed that when the combs are pressed up against the cage, the queen can have access to unsealed honey, so that she can help herself if the bees do not feed her. It is best to flatten the cage a little so that it will fit better between the combs, but be careful to have the cage large enough to allow the queen ample room to turn about freely. After waiting forty-eight hours the queen cage is taken out, the piece of wax or cork taken from one and a piece of news paper—single thickness—is dampened and tied over the open end and is returned to the same place in the hive as before, and the bees will soon liberate her by biting away the paper. In about a week open all the queen cells which may have been started while the queen was caged. Later in the season it would be best to keep the queen cage longer, and to be certain of success with a valuable queen, we should keep her caged in the hive at one least week, cutting out all queen cells before releasing her, and to be sure of this, the bees should be shaken off from the combs for fear of overlooking some. If any cells were allowed to remain and the young queens hatch out, the introduced queen would be sure to be killed. By following this plan carefully there would be but little cause for failure.

Notes and Gleanings.

Death of a Prominent Horticulturist.

We are pained to hear of the death of Mr. I. Gould, Beaver Dam, Wisconsin, as we do from the following obituary in the *Western Farmer*. We had not the pleasure of Mr. Gould's personal acquaintance, but from years of social and business correspondence, we had formed a high estimation of him, both as a gentleman and a horticulturist:

"Ingraham Gould, one of the best known of Wisconsin nurserymen, died at his residence at Beaver Dam, on Sunday, July 16th, after a painful illness, in his 61st year. He was a native of Maine, but came to Wisconsin in 1853, with a small stock of trees and shrubbery. In 1855 he began his nursery operations, which continued to expand until, at the time of his death, he owned 70 acres, and had 30 acres leased, all occupied with his nursery and orchards. Mr. Gould was a man of much energy, and seemed very much interested in his business and the prosperity of Beave Dam. He was an active member of the Wisconsin State Horticultural Society."

Northwestern Horticultural Society.

Ed. Pomologist and Gardener:—In the interests of trees, fruits, and flowers, some of the friends of Horticulture met at Freeport, Ill., July 6th and formed a society for the advancement of Horticultural knowledge, to be called the *Northwestern Horticultural Society*, whose special mission will be to develope a knowledge of the hardier and more reliable fruits, trees and flowers. The officers, (temporary), are L. K. Scofield, Freeport, Ill., President; O. S. Willey, Madison, Wis., First Vice-Presidents; D. W. Adams, Waukon, Iowa, Second Vice-President; Col. J. F. Stephens, Minneapolis, Minn., Third Vice-President; Arthur Bryant, Jr., Princeton, Ill., Fourth Vice President; H. A. McAfee, Madison, Wis., Secretary; S. W. Woodward, Marengo, Ill., Treasurer. A fair this fall, and a winter meeting to fully organize are in contemplation.

H. H. McAfee, Sec'y.

Madison, Wis., July 11, 1871.

David Thompson's Grapes.

Ed. Pomologist and Gardener:—Please remind your readers, that as soon as may be after the publication of your August number, all western grape men, coming East, should go to Troy, N. Y., cross the bridge there, and in fifteen minutes' walk from the Troy Depots, reach Mr. Thompson's vineyard, or rather garden, and see his new grapes. I repeat, David Thompson's grapes, Green Island, ten to fifteen minutes' walk from Troy, N. Y. depots.

From August 15th to Nov. 1st, is the time to see them. No man can be silly enough to despise them. No man should overpraise them. Then the Wm. Carpenter, Farmers' Club, General Grant, Eleanor, Ketchum, and others growing in my own garden, or that of those interested with me in them here. No mildew or disease in this weather of all others so damp, hot by spells, and cool also at times. The wine they make is the rich south of Europe flavor, not the light, acid, German wine. You Western men at least ought to try them. You know *Western Man* means one who knows all we do at the East, and has ten times our go-ahead-a itive-ness.

S. J. PARKER, M. D.

Ithica, N. Y.

Fruit in North-Eastern Iowa.

ED. POMOLOGIST AND GARDENER:—I can safely say it is our year for fruit. Strawberries were a fair crop; Raspberries enormous so as to be a drug in the market; Currants are left hanging on the bushes by the bushel, as they cannot be given away, such is their abundance; Blackberries bending to the ground and just commencing to ripen; Cherries a medium crop. Every tree by the name of pear is loaded to its utmost capacity and many cannot sustain their weight. Apples bloomed more profusely than ever before and promised a most remarkable crop, but while in bloom and for some days after, the weather was excessively hot, dry and windy, and but a very small per cent. of the bloom set and the prospect looked gloomy; but what did set has held on wonderfully and we will have above an average crop. Some sorts are very full, loaded down. Among them are Red June, Red Astrachan, Early Joe, Oldenberg, Clyde Beauty, Tetofski, Raule's Jannette, Sweet Winesap, Scarlet Pearmain, Honey-comb, Jewett's Fine Red. The following have fair crops: Saxton, St. Lawrence, Fall Orange, Fameuse, Willow, Ben Davis, Canada Red, Jonathan, Talman Sweet, Netted Russett, Golden Russett. These light: Benoni, Sop's of Wine, Perry Russett, Blue Pearmain, Northern Spy, Yellow Bellflower, Westfield, Seeknofarther, Winter Winesap, Seymor's Pumpkin Sweet, Blinkbonny.

Scab is more prevalent than usual. Red June, St. Lawrence, and Fameuse are most affected, Red June nearly worthless. I have some new Russian varieties fruiting this summer and I will try and send you specimens if you wish.

I find a tree of Wagner among some strays set several years since, with a very full crop of fruit upon it. Tree not sound but may last some years.

D. W. ADAMS.

Waukon, Iowa, July 24, 1871.

REMARKS.—We shall be more than glad to see specimens of the new Russian varieties. By all means send them along.

Price's Sweet.

We notice in June No. of *Pomologist* that Mr. James Bush wishes to know something about an apple he got under the above name from Illinois. We are inclined to think that there has been a mistake made in writing the name, or that it has been indistinctly written, and that the name should have been "*Spice Sweet.*" This belief is not only founded upon a similarity of sound, appearance of the name and number of letters, but also upon the *fact* that *Spice Sweet* is a common apple in some sections of Illinois. It is described in Overman's Catalogue, large, yellow, second rate, very tender, sweet and rich; season, August and September. Downing also describes it. We procured it from Illinois some years since, but have not had ripe fruit yet, and can give no further description, except the tree is rather spreading and irregular, bark light, foliage light green.

ASSOCIATE EDITOR, *Leavenworth, Kan.*

REMARKS.—There is no mistake at all in the matter. The nurseryman from whom the trees were obtained not only catalogues it, "*Price's Sweet,*" but *Spice Sweet* also; and classifies the former with Kane, Kentucky, Journalaskia, Kentucky Long Stem, Hugh's Crab, and a long list of others, under the head of "*Peculiar Southern Sorts.*"

Grapes in Cayuga Valley.

ED. POMOLOGIST AND GARDENER:—The grape lands of Cayuga Lake are all about it about a mile wide on its shores, and up the valley for eight miles; say a strip of land ninety miles long and a mile wide. Of course not a thousandth part of these lands are occupied. The season opened with fine buds and blossoms; was very warm for a day or two, then cold almost to frost. Grapes seemed to set well, but vast quantities fell early. So of the enormous load we would have had, natural causes have thinned out the crop to a little more than the annual average. The warm, damp air, with cool nights, have swolen the grpe to an unusual size. Many grapes are as large as if ready to color. No disease or insects of any amount. Fair prospects yet.

S. J. PARKER, M. D.

Ithica, N. Y.

TOMATO WORMS. An Illinois paper cautions people to lookout for the worm that infests tomato vines, pronouncing its sting deadly poison. "It is of a green color, two or three inches long, and as large as a man's finger. At Red Creek, Wayne Co., a few days ago, a servant girl while gathering tomatoes, received a puncture from one of these worms, which created a sensation similar to that of a bee sting. In a short time the poison penetrated to every part of her system, and she was thrown into spasms, which ended in death."

Strawberries—When to Plant, &c. W. S. S, Storm Lake, Iowa, asks: "When is the best time to transplant Strawberries, and what kinds do you recommend?"

Spring is the most favorable time for transplanting. Of sorts, take Wilson and Downer's Prolific every time.

W. and P., Malvern Station, Iowa, ask: "Can we make a plantation of strawberries this coming fall, so they will bear fruit next season? If so, how would you do it, and at what time?"

Fall is not the time to plant. Prepare your ground in the fall, and plant early in the spring. Between this and that time we will give an article on the best methods for both garden and field growing.

Blueberries. This favorite fruit is quoted in the Boston market at $7 to $8 per bushel. The blueberry crop has become quite a lucrative item in some parts of New Hampshire and Massachusetts. In many localities where the land has been abandoned for some years, the blueberry has taken voluntary possession, and gives more value to the land than it ever had when under cultivation in its palmiest days. Attention should be given to the cultivation of this fruit. For pies and some other purposes in cookery the blueberry has no equal among fruit. We have this season had the satisfaction of eating the blueberry grown upon our own grounds.

The Peach Crop. This crop is said to be very abundant all through the great peach growing regions of the country. The first of the season to New York comes from Georgia, followed by the Carolinas, Virginia, Delaware, Maryland and New Jersey. Over some of the Delaware and New Jersey railroads special trains run for the conveyance alone of peaches.

Trapping the Codling Moth. — C. V. Riley writes the Rural New Yorker, referring to a statement by Mr. Floyd in this paper, that "nothing is more fallacious than the idea, altogether to prevalent, that the Codling Moth can be attracted either to cider, vinegar, sweetened water, or to fires, in any considerable numbers." He thinks the impression arises from mistaking other moths for the one sought to be destroyed.

Semi-Tropical Fruits.—The fruit growers in some sections of California are turning their attention to the growing of semi-tropical fruits—the orange, lemon, almond, fig, &c. The *Alta* says "the attention of our horticulturists is being drawn more and more to the semi-tropical fruits, and many of our old orchardists think now that they made a mistake ten or fifteen years ago in prefering the northern fruits."

The Grape Crop. The Fruit and Wine Reporter for July, in summing up a synopsis of the grape prospects in Europe and this country, says: "While misfortune has overtaken the vine-growers in portions of Germany and France, and in and about Cincinnati, O. Southern Illinois and the South-West, we of the more Northern grape-growing section of the United States, were never more favored in escaping injury from winter colds, late frosts, diseases and insect enemies of the grape. The blossoming season passed favorably for setting the fruit, the degree of advancement in growth is fully equal with that of last year, which was an uncommonly early one; and we are permitted to rejoice over the prospects we now have of an extraordinary large yield and early vintage. From many parts of our common country we learn of the failure in part or whole of other kinds of fruit, which fact may be taken as an argument in support of the belief that growers of the grape will be able to realize fair prices for their production.

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THE
POMOLOGIST

POMOLOGY, GARDENING, FORESTRY, HORTICULTURE, RURAL ARCHITECTURE, BEES.

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Editor and Publisher, - - *Des Moines, Iowa.*

DR. J. STAYMAN,
Associate Editor, - - *Leavenworth, Kansas.*

DR. WM. M. HOWSLEY,
Corresponding Editor, - - *Leavenworth, Kansas.*

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Climatology — Iowa and California.

BY JACOB STAUFFER, Lancaster, Pa.

ED. POMOLOGIST AND GARDENER:—My attention was called to an article on the comparison of climates in relation to fruit culture, on page 175, current volume of the POMOLOGIST, from the *Pacific Rural Press.*

The writer refers to the report of the Secretary of the State Agricultural Society of Iowa, for 1870, noticing the remarkable drouth in the early part of May, June, and July, and the sad results, in burning up the pastures and producing a general failure of fruits, after abundant promise in the luxuriance of the bloom. Although nearly eight inches of rain fell during the months of May, June and July, and from January to September over 27 inches, yet the drouth destroyed all the fruit crop, while in California, this year, the whole rain-fall in the central portion of the State up to July, has not reached eight inches, notwithstanding the apples, pears and all other kinds of fruit bid fair to be one of the most abundant and the most excellent ever had, and this too in the dryest portion of the State, and upon the dryest lands.

This fact is put forth for a scientific explanation admitting that it is "undoubtedly true to a great extent, that fruit is fed and sustained in its growth from the atmosphere"—"but then" the writer continues, "it must be remembered that the atmosphere is much dryer in California than that of Iowa." "Why is not the fruit of Iowa thus fed and sustained in its growth?" "Why is it? Will some of our meterologist explain?"

Before answering the question it may be proper to state that climatology embraces a wide field of observation, such as the nature of the topography or the extent of the country, its inclination and local exposure; the direction of the chains of mountains by which it is intersected or which are in its vicinity. The more or less favorable conditions of the soil to radiate, absorb and evaporate; the proximity to or distance from the ocean, the air currents induced or even the changes produced by cultivation. All or some of these causes modify the results deduced from the consideration of latitude and elevation alone.

Apart from these diversified considerations, it is easy to estimate the amount of solar heat received by any given space on the surface of the earth in the course of a whole year, as that depends on the number of rays and the obliquity of their direction —for example, a zone of a degree in breadth, is proportioned to the cosine of its latitude; and the effect of a single ray in consequence of its oblique impact is diminished also in proportion to the cosine of the latitude; the diminution of the mean temperature, therefore, in going from the equator to the poles, must be proportional to the square of the cosine of the altitude.

This is the scientific explanation—altitude affects the temperature; that a greater degree of cold prevails in the upper regions of the atmosphere is well known, by the snow covering the summits of high

mountains. The variation of temperature at different altitudes is attributed to the fact that the *luminous* rays of heat from the sun pass through a clear atmosphere, with but little loss from absorption; they, therefore exercise but little heating effect upon the air. When these rays strike the earth, they are absorbed, and the surface, be it land or water becomes heated, and gives out rays of *obscure* heat. The latter pass easily through absolutely dry air, but are arrested, as Professor Tyndall has shown, by the aqueous vapor which is almost invariably present in the lower strata of the atmosphere. Thus the air near the surface becomes warmer than the super-incumbent strata; but instead of mixing with the colder air above performs a mechanical office giving out its heat, and actually becomes colder as it ascends—so that from 80 degs. Fahr. it is cooled to 32 degs. by the time it reaches a hight of 15,000 feet. Humboldt from many observations on this subject, has developed highly interesting facts connected with this subject. The allowance of 1 deg. Fahr. for every 100 yards of ascent, is a rule sufficiently close, and easily recollected.

Large masses of land or proximity to the ocean, exercise considerable influence on the climate; great masses of water moderates by its action on the winds, the heat of summer and the cold of winter. Prof. Tyndall has a lengthy article on the properties of aqueous vapor. He says: "The aqueous vapor is a blanket more necessary to the vegetable life than clothing to a man. It prevents the iron grip of frost, it warms the fields, like a local dam, by it the temperature at the earths' surface is deepened; it finally overflows and gives to space all it receives from the sun—that is, the sun raises the vapors of the equatorial ocean; they rise, but for a time a vapor screen spreads above and around them." I will briefly sum up the leading facts—about "aqueous vapor"—atom for atom the absorption is 16,000 times that of air. The power to absorb and the power to radiate are perfectly reciprocal and proportional; hence it will radiate with 16,000 times the energy of an atom of air. Into space it pours its heat, chills itself, condenses, and the tropical torrents are the consequence. The air expands and is refrigerated. The rain quits the ocean as vapor and returns as water—without naming other climatal phenomena.

Thus the absence of this vapor in the central position of Iowa renders the winter more severe. It must be remembered that a clear day and a dry day, are very different things. The atmosphere may possess great visual clearness, while it is charged with aqueous vapor, and on such occasions great chilling cannot occur by terrestrial radiation. We will now compare California with Iowa, and examine the face of the country of Upper California—the coast mountains, the high peaks and inland mountains. The low land or central or Sacramento basin lying east of the coast range, for 350 miles long and 50 wide. Fogs prevail from May to September, and keep the summer cool, decreasing as we recede from the ocean; south of 35 degs. the fogs are rare and the summer heat greater. The average fall of rain at Fort Yuma is annually but 4 inches, San Diego 10, San Francisco 22, and Humboldt Bay 34 inches. Sierra Nevada, at an altitude of 5,000 feet, 44 inches, varying with the height and latitude along the coaet. South of Sacramento 40 degs., rains are rare between May and November, which is the dry season. The variation of the mean temperature is most rapid about the Middle latitude of 45 degs. in consequence of the transitions are more rapid; it is these sudden changes that baffle the fruit-grower—and where the gravelly soil prevails the radiation is more rapid—and what might prove a plenteous season of rain in one section would occasion drouth in another, so that the inches of water that fell in one place, is no criterion, unless it is shown that other things are equal.

The mountains affect the climate of the adjacent plains in various ways—by the reverberation of heat from naked rocks; by affording shelter from certain predominating winds; and by giving rise to descending currents of cold air from the higher regions of the atmosphere, in consequence of the disturbance of the eqilibrium of heat produced by the radiation from their sides and summits, so that while the sun's rays fall upon it at a less oblique angle, it is sheltered from the cold winds blowing from a higher latitude. All this is favorable to California, and the reverse to Iowa, which demands a different theory to account for the fertility it possesses, and the success in fruit culture. Hence, also it is true that grain of all kinds matures and comes to the greatest perfection with a much less amount of rain in California than is necessary to serure a much less perfect crop in Iowa or the adjoining States. Consider the statements made preceding and the conclusion is easily arrived at or the solution of the question propounded.

As regards the latitude between the two States taken centrally, would not make more than 5 degs. further north for Iowa—yet, it is far removed from both the Atlantic and Pacific Oceans, and the aqueous vapors arising therefrom. Compare the extremes of heat and cold during the year in Iowa, with the same variation in California, where it hardly differs 10 degs. during the whole year, on an average, for the locality of San Francisco. How is it at Des Moines? Iowa is, with few exceptions a rolling prairie, and a soil that needs saturation during May and June, to supply the requisite moisture. I have not posted myself as to the various conditions of the soils in various localities, and simply

refer to it now, in a general way. I may give the subject further thought, as this was penned on the spur of the moment, without special research or enquiry. The leading facts may, however, be profitable and climatology presented as a subject that needs greater attention, and proper data should be given, as to the locality or range of failure, in order to be more definite—as "circumstances alter cases."

The Crab vs. Apple.

By Dr. C. Andrews, Marengo, Ill.

Ed. Pomologist and Gardener:—In your June number, Mr. D. Wilmot Scott inquires why Mr. Gould and others have applied the name Russian Crab to the Tetofski Apple, which he "objects to as giving a desirable, hardy, good fruit a bad name."

Mr. Gould has not replied, but we think the reason is obvious enough why he and others have applied that term to a comparatively unknown—though not a new fruit—which from the fact of its Russian origin, was supposed to be as hardy as the well tested Oldenburgh. It was to make it sell. The term crab had become a synonym for hardiness, hence to sell a new tree in the extreme Northwest, it was necessary to call it a crab. Tree dealers have frequently called the Oldenburgh a crab, some perhaps honestly supposing that a variety so extremely hardy must be a crab of some sort. If I am not mistaken, even so well informed a gentleman as your correspondent, Mr. P. M. Gideon, of Minnesota, has believed that his promising apple, the Wealthy, was partly a crab. Historically it is not at all improper to call any apple a crab, for if the received opinions are correct, all have sprung from some species of wild fruit. The apples of Shakespeare's time were commonly called crabs. But it is only usual at the present day to apply that term to fruits which retain some of the traits of the original species in their primitive purity. Hence if the Tetofski or the Wealthy retain the perfectly hardy habit and structure of the original *Pyrus Malus Astrachanica* or Russian apple—which is claimed to be a distinct species—it is just as proper to call them Russian Crabs as it is to call the Transcendent, or the Marengo, Siberian Crabs.

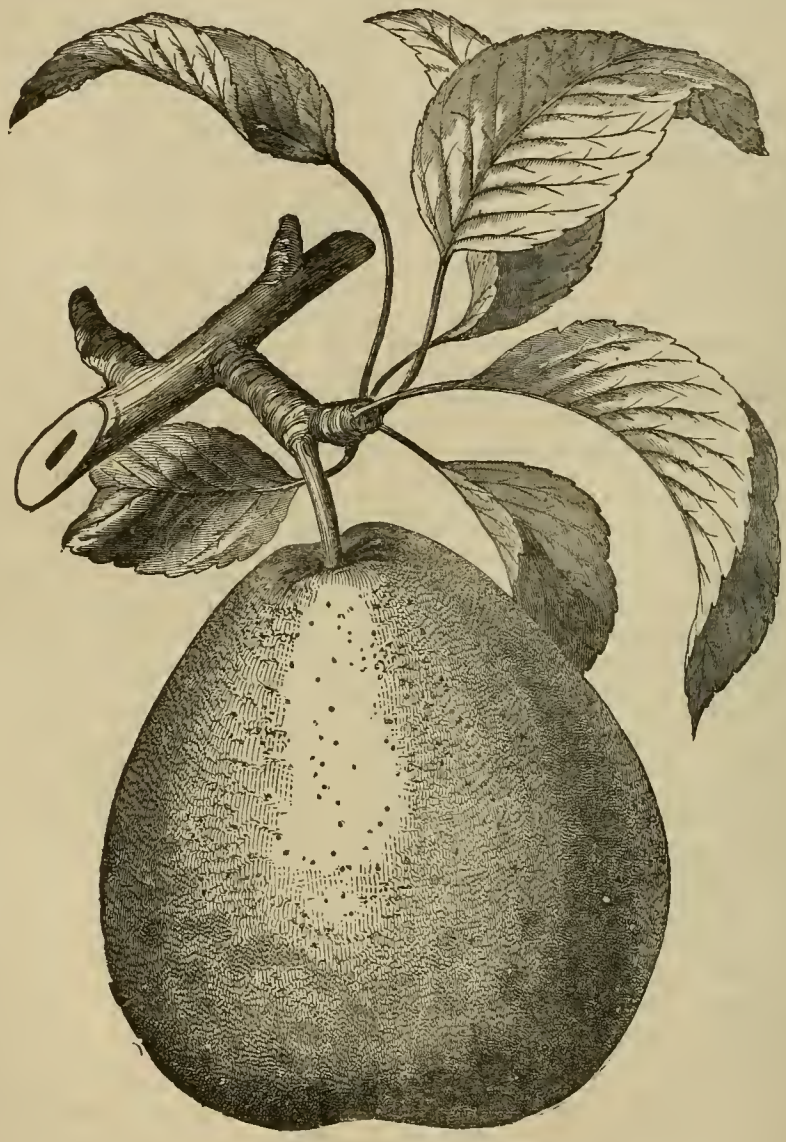
But neither are correct and the practice in both cases should be discontinued. For I know of no good reason why pomologists should ignore the known rules of philology. The word crab-apple signifies a wild apple and technically it is not proper to apply it to any but the sour, acerb fruits which retain the "rough taste" of the wilding. In such a sense it is certainly a "bad name." When applied to such apples as the Tetofski or Oldenburgh, we agree with Mr. Scott in thinking it a mere advertising dodge, but scarcely a reprehensible one, *if* the trees thus sold really possess the qualities intended to be guaranteed by the term, namely, entire hardiness in a rigorous climate. When the term is retained in speaking of the Transcendent and other improved Siberians, it is merely a concession to a popular habit which cannot be at once corrected. For instance, the Hislop, Briar's Sweet, Marengo Winter, Coral, etc., would be unintelligible to tyros without the addition of some term to identify the species to which these new sorts belong, and as the word crab is curt and expressive of the one quality most essential of all to dwellers in the north, it will doubtless long continue in popular use. But the correct practice would be to designate these two classes of apples respectively—Russian apples and Siberian apples.

But a graver error is involved in calling the Tetofski a crab, from the fact that there is still a great difference of opinion as to the hardiness of this apple. All the Russian apples have not proved hardy. None but the Oldenburgh has stood the test as far north as St. Paul for any considerable number of years, and some of the most experienced nurserymen of that vicinity do not regard even that as wholly reliable there. On the other hand, the fact that the popular botanical abuse of the term crab has so extensively prevailed and is still so tenaciously adhered to at the north, is a positive proof of the perfect hardiness of the Siberian family. Hundreds of new seedlings of this species are constantly coming into fruit, some of them extreme late keepers, and all accounts report them entirely hardy as far north as they have been tried. And yet in the face of these facts some of our scientific horticulturists whose views seem to be narrowed down to microscopic dimensions, have despaired of any successful results in producing a race of "truly iron clads from the Siberian crabs." A review of some positions of one of your correspondents I reserve for another number.

"Grimes' Golden" Apple.

Ed. Pomologist and Gardener:—I observe that Grimes' Golden is beginning to be talked of in your section of the country. I have a bearing orchard of over five hundred trees. I have besides the Grimes, and other popular sorts—R. I. Greening, Peck Pleasant, Baldwin, Rome Beauty, Roxbury Russet, American Golden Russet, Willow, &c. In varieties I have in all about one hundred, and I place Grimes' Golden at the head of the list in point of hardiness, fairness of fruit, uniform bearing and superior quality. My orchard is twenty-one years planted. For the last sixteen years Grimes has not failed to give me an annual crop of fair and good sized fruit. James Crawford.

Augusta, Carroll Co., Ohio.



Flemish Beauty.

The Flemish Beauty.

Too much cannot be said in praise of this fine pear. The accompanying illustration, though not copied from specimens growing upon our own trees at this time, is a life-like representation of the fruit. Of over one hundred trees upon our grounds, embracing several of the most noted varieties, no one sort gives better promise than the Flemish Beauty. Fruit large, fair and handsome, a good tree, hardy and productive. Some of our Wisconsin and Minnesota correspondents speak in high praise of it We believe this pear peculiarly fitted to a lightish soil, for the finest fruit, by all odds that we have ever seen of its variety, has been grown in this city upon a light sandy loam. We took specimens of it to the meeting of the American Pomological Society at St. Louis in 1867, which greatly excelled in size and beauty, fruit of the same sort on exhibition from any other section. We copy Downings description of both tree and fruit. As to season, however,—last of September, he errs so far as this section of country is concerned. The fruit is ripe here early in September.

"An old Pear, supposed of Belgian origin, although foreign authors conflict in regard thereto. The tree is very luxuriant, hardy, and bears early and abundantly; the young shoots upright, reddish olive brown. The fruit requires to be gathered sooner than most pears, even before it parts readily from the tree. If it is then ripened in the house it is always fine, while, if allowed to mature on the trees, it usually becomes soft, flavorless, and decays soon.

Fruit large, roundish obovate obtuse pyriform. Surface a little rough, the ground pale yellow, but mostly covered with marblings and patches of light russett, becoming reddish brown at maturity, on the sunny side. Stalk rather short, from an inch to an inch and a half long, and pretty deeply planted in a peculiarly narrow, round cavity. Calyx short, open, placed in a small round basin. Flesh yellowish white, not very fine-grained, but juicy, melting, very saccharine and rich, with a slight musky flavor. Very good. Last of September.

Clapp's Favorite, and Other Summer Pears.

By D. B. Weir, Lacon, Ill.

Ed. Pomologist and Gardener: Some of your readers will recollect the beautiful specimens of the Clapp's Favorite Pear shown by the venerable President of the American Pomological Society's meeting at St. Louis in Sept. 1867. Then and there I fell in love with it, and in the spring following I procured dwarf trees of it and grafted scions into bearing dwarf and standard trees of other varieties. These gave me a few specimens last year, and are in fine fruit this year, and since the 25th of July, I have regaled myself with well ripened specimens of the fruit. It more than meets my high anticipations. The trees so far have been perfectly hardy and healthy. Here is Downing's description of it and its fruit.

"This extremely fine and valuable Pear was raised from the seed by the late Thaddeus Clapp, of Dorchester, Mass. The tree is an upright, spreading, vigorous grower, forming an open, well shaped head, in which the fruit is evenly distributed, and almost uniform in size; very productive; young shoots dark reddish brown. Fruit large, obovate ovate, slightly obtuse pyriform, surface uneven, skin thin, pale lemon yellow, marbled and faintly splashed with crimson and fawn when fully exposed to the sun, thickly sprinkled with brown dots, and sometimes patches and traces of russet. Stalk nearly an inch long, a little inclined, stout and somewhat fleshy, inserted in a slight depression. Caylix partially closed. Segments stiff, erect. Basin shallow, slightly corrugated. Flesh white, fine grained, juicy, buttery, melting, rich, sweet, vinous, a little perfumed, very good. Last of August or early in September."

This description answers well, as grown here, only I would say, that if taken from the tree as soon as mature, and properly ripened in the house, *best*, in place of "very good." It is claimed that this pear is a cross between the Flemish Beauty and Bartlett, the tree being very similar to the first, in leaf, color of the wood, and hardiness, though here not so strong a grower; and the fruit resembling the Bartlett in many respects. It certainly combines all the good qualities of these two most valuable kinds, with, so far as I can see, none of their few faults. I predict for the Clapp a great future in the West. To those who do not understand summer pears (and I fear their name is legion) it will have one great fault, to-wit: it will not ripen on the tree. But if this is a fault, it extends, so far as my knowledge goes, to all summer pears. Some few, it is true, will ripen into passably gook fruit if allowed to hang on the tree until mellow. But I have found none but are much better every way if taken from the tree as soon as fully grown and somewhat colored, and placed in the house in an even temperature, to ripen. If quite green they should be placed in a dark, close place until they begin to mellow, and then be exposed to the light in the shade.

The Clapp is one of those which unfortunately will not ripen fit for any use on the tree. It begins to decay at the core before it gets mellow at the surface, but if taken from the tree when grown, or even *half grown*, it ripens up most deliciously, and assumes the most tempting color, and will remain in fine condition for a long time. It cannot be too strongly impressed on the minds of those who grow

summer pears, that the fruit must be taken from the tree before it becomes mellow, in order to have it *fit to eat*. The Madaline, Bloodgood, and nearly all other early pears, are about as delicious and juicy as a handful of dry flour, when allowed to ripen on the tree. Some should be picked even before fully grown and colored, especially from dwarf trees Among such I would name Kirtland and Tyson, both perfectly worthless when ripened on the tree, but among the very best if picked as soon as grown, but if allowed to approach to near maturity before picking, liable to become "mealy" instead of almost bursting with honeyed, free juice. The Flemish Beauty will ripen to almost perfection, if specimens well exposed to the sun are taken from the tree as early as the first of July, or when only one-third grown. I take advantage of this, and change it into one of my earliest, and certainly best *summer* pears. My plan with it — and it will apply to all other pears I have tried — and I believe it will apply to all summer and autumn pears — is as soon as the fruit has attained the size of a "quail's egg," to look over my trees, and remove all ill shaped fruits any way, and if there is an over burdensome crop, one-third, one-half or two-thirds of the fruit, using proper judgment in relieving the tree, so that the fruit left will have a good chance to grow. Then as soon as the fruit left is half to two-thirds grown, if my trees are in the least overburdened, (and I almost invariably find them in that condition if they have a crop at all), I take off half and ripen them up in the house, and place them on the market. The fruit left on my trees will grow to a great size, and makes nearly as many bushels as if all had been left on, and from its superior size brings me more money than if all had been left on the tree Besides, the trees are greatly relieved, for it is a well known fact to the observing man, that it is the seeds of the pear, the maturing of *them* that exhausts the tree, rather than the maturing of the *sarcocarp*, or fleshy and edible portion of the fruit.

There is one other point in pear growing that I wish to seriously protest against. That is, the outrageous habit many growers have of propping their trees up, or rather the leaving of fruit enough on a tree to break it down if it is not propped up. What! let our trees break down? Not by any means. Any tree or branch that has fruit enough on it so as to be in danger of breaking should have a part taken off before it is at all endangered, for there is nothing surer to bring about the death o a pear tree in the West, especially in our dry seasons, than an overburdensome crop of fruit allowed to mature on the tree.

[The imporance of trimming out the fruit of overburdened trees should be better understood One of the finest Flemish Beauty trees that ever grew was to be seen in one of the fruit gardens of this city in 1867. The tree had been set about ten years, and was a perfect model of a tree. It had borne several fair crops but the crop of that season was a wonder both in size of fruit and quantity—every branch and twig was overburdened. Early in the season we advised the owner to thin out the crop one-third. He demurred—"nature knows her own business best." The tree ripened up its precious burden, and with it gave up the ghost—its leaves dropped prematurely and for the last time.—EDITOR.]

The Pear and Apple Tree Blight, South.

The Western *Ruralist*, published at Louisville, Ky., and at Nashville, Tenn., says:

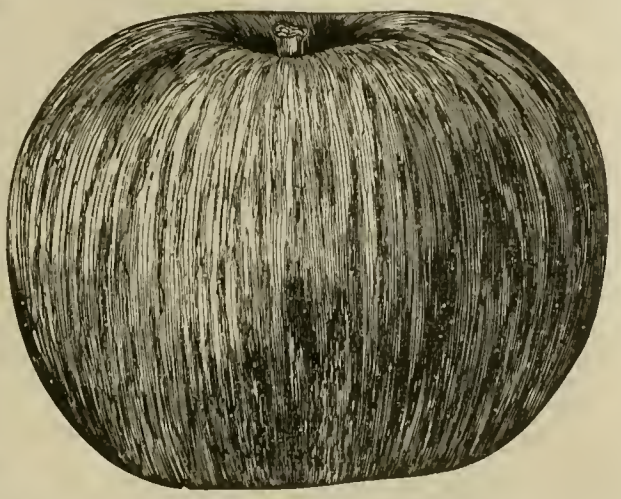
"As we intimated in a former number, fire blight or frozen sap blight, has prevailed in its most violent phases since the cold storm on the night of the 22d of April. What is not usual in the former history of blights in this district, the present visitation of the malady seems to affect the Bartlett most seriously, although it has heretofore seemed, like the Seckel and Low, to be but slightly susceptible of injury from this cause. Glout Morceau, Madelein, Beurre Diel, White Doyenne, Osband's Summer, Andrews, St. Christain, Beurre Superfine, Sheldon, Flemish Beauty, English Jargond, Dix Columbia, Jaminette, Buffam, Urbaniste, and Belle et Bonne, have all suffered considerably in our grounds. Some others slightly, and only Lawrence, Seckel, Bloodgood, Cary, and Tyson, of bearing size, have escaped unharmed. As a result of the same sharp frost which so seriously damaged the pear, many varieties of the apple have clusters of young fruitlets, with the small branches on which they grew, scattered over the whole surface of the trees affected, that beyond mistake are the victims of blight. We noticed some trees of the Baldwin, Alexander, Newtown Pippin, and Gloria Mundi, which at one time seemed to be struck down. They have since, however, rallied and seem to be nursing well a heavy crop of fruit, which survived the frost while these branches and the clusters blooming on them have perished.

There is one fact about blight in the apple to which we would call the special attention of the orchardist, and that is that gangrene cannot eat its way into and down the larger branches, as in the pear. We think a disease is half cured when we know exactly how it comes and how it spreads itself. We sometimes think the susceptibility to violent phases of blight consists in the gross and fleshy texture of the bark. We know by experience that when gangrene gets into the live bark on the body of a plum or cherry tree, it is almost impossible to arrest it and form a healthy lip to the wound. And we know, moreover, that Glout Morceau has a bark of this sort, and besides that Glout Morceau suffers more from blight than perhaps any tree in the catalogue. We shall be glad to hear from our brethren orchardists on this point."

Early Queening.

By the Associate Editor.

Fruit medium; weight six to eight ounces; form round, slightly conic, a little flattened, regular; skin rich yellow, splashed and striped with reddish purple; dots few, small, scattered, grey; stem medium, rather stout; cavity wide, deep, green, wavy; eye small, nearly closed; basin narrow, shallow, furrowed; core slightly open, medium size; carpels wide open; seeds small, ovate, dark brown; flesh yellowish, tender, juicy, very spicy, quince flavor, mild acid; quality very good; use, table, kitchen, market; season, July 15 to August 15.



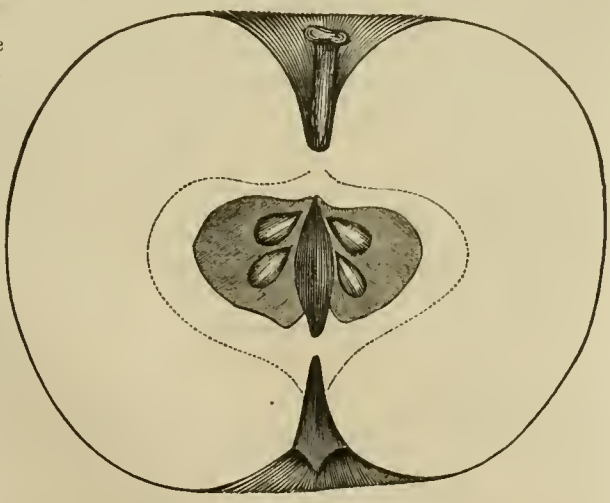
Tree healthy, medium grower, spreading, early bearer, productive. This we consider the best early apple we have, coming in soon after the Early Harvest, when we have no other apple of equal quality for all purposes. This must not be confounded with the Summer Queen, which is a very inferior apple, and defective tree, compared with the *Early Queening*. We procured it of Dr. Waring, Tyrone, Pennsylvania, some twelve years ago, and do not know its origin. This will no doubt prove a valuable addition to our list of early summer apples, and should be extensively tried, particularly in Kansas.

Dwarf Apples.—Profit and Propagation.

The desire to have pear trees bearing at an early age, and on trees that do not grow too large for a small garden, gave rise to the mode of propagating pears on a quince stock, or so-called dwarf pears Thus an amatuer may have a considerable collection even in a city garden. For pear trees on a still smaller scale, say for growing in pots, they are worked on the haw (*cratægus.*)

Apples are dwarfed in a similar way, a mode long known among horticulturists, though as yet but very little used in America, while it is quite common on the European continent. Thus, for instance, at Herrenhausen, in Germany, pears and apples raised in pots and producing very fine fruits may be seen to a considerable extent.

But the dwarf apples are of much more importance in the open garden, and in France whole compartments in the large gardens are devoted to them. According to the stock on which they are worked, they are planted at from five to ten feet apart.



OUTLINE.

Many varieties of apples can be raised from cuttings without any trouble; but those of the Codling or Burknot tribes grow as well from cuttings as in any other way. Apple trees raised in this way from healthy one year old branches with blossom buds upon them, will continue to go on bearing the finest fruit, in a small compass for many years.

The stocks on which the apples are dwarfed, are of three kinds, as:

1. Doucin, (by some pomologists *incorrectly* called "Doucain.") 2. French Paradise. 3. Dutch Paradise, or creeper.

Though the varieties of the Codling tribe are found to change but very little, when raised from the seed, still the above kinds of stock are always from layers or cuttings.

The Doucin, the strongest growing kind, is of French origin, as its name indicates. Its growth is straight and upright, and here in the South is not very dwarfish. Its bark is very dark colored, glossy, and dotted with numerous white specks. Its fruit is dark, ribbed, and ripens here in August. The Doucin is specially used as stock for pyramids as well as for dwarf standards, with a stem not exceeding fifteen inches in height, and planted at a distance of from eight to ten feet apart, according to the quality of the soil. The French Paradise is much smaller, the bark more grayish, the leaves more thin, deeply, sharply, and unequally serrated or toothed. This stock is used for working varieties that are intended for the bush form, and to be planted about six feet apart. The Dutch Paradise or Creeper, is the true type of the Burknot, or little Codling tribe, with many fibrous roots, looking like a burr, and with nodose twigs. The growth is straggling, the bark coffee-brown, the leaves thick, leathery, very regularly, finely, and bluntly toothed, (crenate.) Its wood is very brittle, and it should therefore always be worked very near the ground. Six feet distance is sufficient. But where the soil is very rich, trees worked on the last two mentioned kind of stock may be put a little further apart.

A little orchard of such dwarf apples is not only a beautiful sight, but it is also very profitable. They generally bear the third year from the bud or graft, and the fruit produced is much larger and finer than the same varieties on standard trees. Of course, the trees being mere bushes, cannot produce a great deal each of them, but I have often seen such trees, four years old, producing a peck of beautiful fruit. At six feet distance an acre will hold about 1200 trees, at eight feet, if that distance should be allowed, it would hold about 680 trees. It will no doubt be evident to everybody, that such an orchard, coming into bearing at such an age would be very profitable. The dwarf trees, owing to their peculiar roots are satisfied with a more shallow soil than standard apples, but if a richer soil can be devoted to them, they certainly will pay high interest.—*Correspondent American Cotton Planter.*

Horticultural Notes from Nebraska.

By Robert W. Furnas, Brownville, Neb.

Ed. Pomologist and Gardener:—The fruit crop in Nebraska this year is only passably fair on the average. Some varieties are best, others failures, and again intermediates or medium. Grapes were never better any where, either as to quality or quantity; notwithstanding all the first bloom was killed with Spring frosts, on my own grounds the Concord, Delaware, Diana, Iona, Israella, Hartford, Isabella, Catawba, Ives, Rogers 15 and 19, Salem, and Clinton, are most magnificent. Such clusters of Diana and Delaware I have never before seen; large, well shouldered and so compact as to be perfectly solid. In all parts of the State every body has grapes this season.

Peaches average fair, some trees in this vicinity are already broken down with fruit. We have cultivated mostly seedlings, many of which are number one in quality, some of the old budded varieties have been fruited and are fruiting this season. Troth's Early, Cole's Early, Crawford's Early, and Early York have done well.

While of many varieties of apple the trees are full to breaking down, the average crop is scarcely fair this season. Raules' Jannette we find here "old reliable." Too much cannot be said of this apple as reliable in *all respects*. Our early warm spring days cannot seduce the Jannette from his winter quarters until "due time;" and the tree is perfectly hardy; an early and prolific bearer.

Pears are quite reliable with us. The crop this season, is not, however, as good as usual. What we have are very fine. Bartlett, Flemish Beauty, White Doyenne, Duchesse d' Angouleme, Beurre Diel, Louise Bonne of Jersey, Sekel, and Vicar of Winkfield, give general satisfaction.

Of Cherries, the Early Richmond is our dependence. Some other varieties occasionally give us a good crop; the Richmond almost universally.

All our fruits this season are much in advance of any former season. Especially is this the case with grapes. Hartford and Ives ripe and gone at this writing (Aug. 2). Delawares good eating, Concord, Israella, Rogers' 15 and 19 well colored.

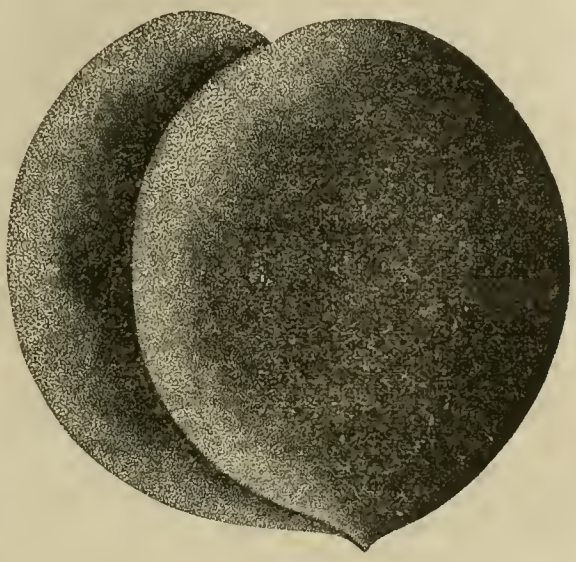
How are you, Mr. Editors on the bird question? Do you "spare the birds" indiscriminately? I *have been* one of that class. Have done all in my power to accommodate and repay for "morning songs" and insect devastation. Have planted liberally with a view to a divide with the birds, and have been willing to give half. But when they claim and take *all* for four or five consecutive years—*all* my early cherries, apples, pears and sweet grapes, I confess "patience" with me "ceases to be a virtue." I have hung up pieces of tin, looking glasses, scare crows, shot "blank cartridges" among my trees and vines and all to no purpose. Having tried "kind words and tufts of grass" I am now resorting to the "rocks"—powder and shot. From five hundred full bearing vines last year, I did not get a perfect bunch of sweet grapes except where I covered with musquito bars. This year as fast as they color the birds attack them. If they would take the whole berry as with cherries and gratify their appetites one could stand it. But they "go through" the bunch, and bunch after bunch, puncturing each berry and leaving it to sour and spoil. Hereafter "I am for war" on the Orioles, Cat Birds, Robins, Thrushes and Woodpeckers.

Our State Fair and Horticultural Society meet at this place commencing September 26th. From present indications, there will be a "big turn out" and a good time. "Come and see us."

Black's Extra Early Peach.

By the Associate Editor.

Fruit large; form round, with a slight point; suture distinct, shallow all around; color, clear rose pink, shaded maroon and slightly mottled with light yellow, very handsome; flesh stained red to the seed, to which it slightly adheres; juicy, tender, with rich sub-acid; excellent. Stone small, short, light red; quality the very best; season, July the 4th to the 15th. Tree good grower, hardy and productive. An accidental seedling found amongst a lot of trees set out on our farm, 1867.



This is the earliest peach we are acquainted with, ripening this season before the 4th of July, being from ten to twelve days before *Hale's Early*, and it is of larger size and better quality.

Its extreme earliness, great beauty and fine quality will always make it command he very highest price in the market.

We have sold four times as many of it a Early York, and at double the price at the same time, 14th of July, this season.

Injury of Fruit Blossoms by Frost.—A correspondent of the London Journal of Horticulture says: The most tender portion of the flower or fruit is the style of pistil, and that is the vital part; when that is injured in any way, however slight, the uses of the flower are at an end. The stamens are almost as hardy as the leaves, and are very rarely injured. The petals, also, which are the beauteous part, stand a good deal of rough usage. They are, however, of no benefit to the fruit. To discover when apples or pears are killed by frost, simply look to the pistil, which very soon shows the effect; if it is green it is well; if black, then it is dead; and for further satisfaction, cut transversely through the young fruit, and experience will soon teach, even with the fairest flower, the value of a black heart."

Pear Growing.—Fourteen Years Experience.—The Quince as a Stock.

By The Corresponding Editor.

Aside from the causes of the blight, there is no one point in pear culture, upon which there is a greater diversity of opinion among fruit growers, than the comparative merits of the quince and the pear as a stock.

We propose, therefore, to give some of the reasons which incline us to prefer the *quince*, especially in certain localities. When we shall have given our reasons for this preference, we will give some of our own experience, both with the quince and the pear.

1. The quince causes the pear to fruit much earlier than when worked upon its own root. Such varieties as unite kindly with the quince, as the Duchess d'Angoleme, Louise Bon d'Jersey, White Doyenne, and others, will generally bear at the fourth year from the bud, and under favorable circumstances will continue to bear regularly until they cease from old age. This we conceive to be a very satisfactory argument in favor of the quince, since the pear on its own roots does not usually bear in less time than from eight to fifteen years. When we speak of the quince as a stock for the pear, we always mean the *Angeres Quince*, the most thrifty growing variety now known.

2. The quality of the fruit in many varieties, as Beurre Langher, Soldat Labourer, Duchess d'Angouleme, Easter Beurre, Glout Moreceau, Louise Bon d'Jersey, and Vicar of Winkfield, and others, is very considerably improved. This is another reason why the quince stock should be used, especially when applied to these varieties.

3. Trees grown on the quince are much more successfully transplanted than when grown on the pear; since the quince roots much more readily than the pear, being raised easily from the cuttings, while the pear will scarcely grow at all from the cutting. It is only when the trees are frequently transplanted while quite young, that they can be satisfactorily set at suitable age for final transplanting on the pear root.

4. Those trees worked on the quince are somewhat less liable to *blight* than when worked on the pear stock. This is because the quince has to some extent, the same effect as root pruning in checking unusual and exuberant growth of young wood. This unusual growth being the most prolific predisposing cause of blight, for the next season. Trees thus worked upon the quince come into bearing early, and although the trees may make roots from the pear while quite young, yet the amount of fruit produced makes such demands on the root for sap that the unusual growth of wood which would otherwise be made is greatly reduced, and consequently danger from blight greatly lessened.

5. Whenever a tree is so transplanted as to sink the junction of the pear with the quince, from two to four inches he ow the surface of the ground, the pear will, in most cases, without any other manipulation, take root, and thus gradually convert a dwarf into a standard tree. By thus using the quince as a stock, we secure an early supply of fruit and in the case of some varieties an improvement of size, beauty and flavor, and at the same time are gradually increasing the size of the tree with the enlargement of the crop of fruit, while the life of the tree is prolonged to quite old age.

The foregoing remarks are intended to apply to those soils that are more congenial to the growth of the quince than to the pear.

Our own soil is composed of loam, gravel and shale, with a sub-soil of strong, heavy clay. We have about sixty-five trees in bearing, about fourteen years of age, most of them having borne for several years. Our site is an inclined plane, inclining at an angle of about 30 degrees, affording ample surface drainage. In the soil above described the quince grows finely. The pear root, especially when deeply sunk does not succeed near so well as the quince. When our trees were set in their present position, there were three of them on the *pear* root, the balance on the quince. Those on the quince, generally, have greatly outgrown those on the pear root; so that for soils of the above description, we feel quite safe in recommending the quince as the better stock for those kinds which unite readily and successfully with the quince. Among the varieties which may be relied upon for such soils, when so worked are the following: Beurre d'Anjou, Beurre Diel, Duchess d'Angouleme, Easter Beurre, Glout Morceau, Louise Bon e'Jersey, Vicar of Winkfield, Urbaniste, White Doyenne, Stevens' Genessee, and Tyson.

Many of our trees were originally planted as dwarfs, have, without any assistance of ours, thrown out roots from the pear, and have consequently become standards—we use the word *standard* in its common acceptation. Those trees whose pear roots are growing near the surface are now making fine growth and promise to become quite large. We know that many of them have rooted from the pear, because they throw up pear suckers from the surface. Hence the preference to be givin either to the pear or the quince as a stock for the pear, must be determined mainly, by the composition of the soil in which we wish to plant.

We would remark that the best informed among us have much to learn upon the subject of successful pear culture, not only in the adaptation of stocks, soils, and climates, but also in regard to the various diseases which attack both tree and fruit, with their preventives and cures.

Lessons of 1869 and '70.

By Dr. James Weed, Muscatine.

Editor Pomologist and Gardener:—The prominent characteristics of the two seasons present striking contrasts. The former was excessively wet with early and very severe autumnal frosts; the latter witnessed the most severe and protracted drouth that has occurred in this locality since the settlement of the country. In 1869 apples and cherries were especially abundant; in 1870 both were nearly a complete failure. Apples in '69 were much damaged by early frosts. October 19th mercury at 30 degs. On the 20th it fell to 22 degs. At near 10 o'clock, A. M. the foreman on my brother's farm brought me an apple solidly frozen, and wished me to advise him whether he should continue picking. I went to the orchard and found all frozen solid, and my own men engaged in hand picking had gathered several barrels of Raules' Janett, a variety said to endure freezing better than most others. These I ordered taken to the well, the barrels to be filled with cold water, and the picking was discontinued, as from appearances they were probably injured, if not spoiled. Business calling me to town I left in much the same humor I can imagine the milkmaid was in, in view of the dull prospect of a new silk dress with the spilled milk at her feet.

On my return at noon, however, I found the apples on the trees under a warm sun had resumed their natural plumpness and elasticity, and were all as perfect as ever except the diminutive and unripe ones, which were wrinkled and soft throughout. My workmen said, "what shall be done with those in the barrels? They have frozen the water to one solid mass." They were left until the ice melted, but were hardly as plump as those left on the trees. On the 23d at 6 o'clock, A. M. temperature was 30 degs.—at 9 P. M., 23 degs.—at 6 A. M. on the 24th, 18 degrees. Apples were again frozen and presented, so far as could be judged by the senses, the same condition as on the morning of the 20th. Some were gathered and put into cold water, but when the frost came out they were in common

with all on the trees, *literally killed*—exhibiting the physical condition of a wet rag. I learned something which perhaps everbody else knew; but I should like to have some one explain why the apples could endure ten degrees of frost without the slightest injury, and be completely ruined by fourteen degrees.

Would the frozen apples of which there were many hundred bushels in this vicinity, answer for cider? No facts could be elicited from positive experience either affirmative or negative, but speculative opinions gratis, were as plenty as blackberries. Referring the question immediately to a practical test, I was surprised and gratified to find the cider instead of being impaired was really improved in flavor and quality. It was high colored, very sacharine, and every way superior. I regret I did not try its keeping qualities, hut have no doubt it would have kept equally as well and perhaps better than that from apples not frozen.

A neighbor favored me with a sample of cider made from apples that had been suffered to hang on the trees until Febuary, which had the same impaired flavor that is found in "frozen and thawed" apples at that late season.

Horticultural Notes from Wisconsin.

By Geo. J. Kellogg, Janesville, Wis.

Ed. Pomologist and Gardener:—The season, with its failures and successes, is so far past that we may safely record some of its facts and teachings. Spring opened early; its harbingers, the bluebirds and wild geese made their appearance about the 1st of March. Digging trees the 10th to 15th. Frogs commenced their music about the 20th, and mosquitoes on town meeting day. Weather fine, seasonable showers, and no frosts to injure anything till May 6th, 7th, 9th aud 10th, when cherries, Early Richmond, were in full bloom.—Also peaches, pears, plums, currants and strawberries. The frost was so severe on the morning of the 10th as to form ice in my horse-trough. The following week the thermometer ranged from 38 to 84; no day but it was up to 60. The morning of the 18th of May, ice formed in a tin wash dish one-half an inch thick. This was a hard one on strawberries; and the hot weather of the last six days of May and the first six of June, (when the thermometer was not less than 62 any morning at daybreak, and the extremes at noonday were 78 to 93), combined to destroy our crop of strawberries;—well mulched beds did not do as well as those all grown over with sorrell and grass

Other fruits have done, and are doing finely,—except the losses by blight on pears, apples and crab—which made its appearance about the 10th of June, following closely on the hot two weeks previous. The causes of this disease are yet a mystery—whether heat, electricity, insects, rapid growth, want of cultivation, or a combined influence of a part of them, the fact is, blight *will kill*. We ought to have applied the salt remedy, but did not. Pears have blighted worse than for many years, and all kinds with me have suffered about alike; having mostly Flemish Beauty, have lost more of those. Worse on bearing trees and those three or four years planted than nursery growing trees. In one lot of four hundred Flemish Beauty, three to five feet high, that have made from twelve to thirty-six inches growth, we have not seen a black tree or limb. Stocks seem to make no exemption, for those on white thorn and mountain ash are served about the same; even the Mt. Vernon has blighted a little.

Blight amoug apples has been very severe,—Tallmans's Sweet suffering most of any variety—and of the best five varieties for the Northwest, viz:

Red Astrachan, Duchess, Fameuse, Golden Russet and Tallman's Sweet; they are affected by blight as in the order named, the first having least, and the last most.

And yet with all these drawhacks the apple crop of our State is larger than ever before, apples selling on the street from twenty-five cents to one dollar per bushel. The first picking of Red Astrachan sold at one dollar and a half to two dollars. Some of our orchardists report two thousand bushels as their crop this year—and all this in Wisconsin, where we can't grow fruit. Suppose we had planted, twenty years ago, what we now would recommend, we could now have supplied all the Northwest with apples. If the past twenty years' experience and observation has been of so much advantage to us, what may not the future become? What if we had continued to plant Rhode Island Greenings, Baldwins, etc?

What do you think of the man who still continues to buy of these traveling tree peddler, who furnish everything a man wants out of the same bundle? He ought to go without fruit so long as he lives. When will our people look about them, see what is doing the best on their own soil and in their own vicinity, and order of some reliable nurseryman what they want, and let these itinerant, swindling tree dealers go to Waupun, or some other place where they will have to *work* for a living.

To any one setting one hundred apple trees, the last volume of the Wisconsin Horticultural Society, would be worth ten dollars, and one dollar will buy it and give you a membership in said Society. O. S. Willey, Secretary, Madison.

I cannot close this already too long communication without a word in favor of the Davison Thornless raspberry, also the true Miami. Worthless varieties are sold in the place of each. Beware of *whom* you get the plants. The Davison Thornless is

the *earliest* Black Cap, and has yielded with me, this year, seven pounds or seven quarts of fruit per bush, two years planted. The Miami is the latest of the Black Caps, both perfectly hardy, and indispensable in any collection. Plants can be sent safely by mail any where in the United States. We have sent apple trees one year old safely to California by mail.

Now is the time of Fairs; go and take notes; while you can see the fruit on exhibition, make your orders for trees. Don't be lured by the show of some *big* apples; they are generally worthless Take the advice of those who ought to know what are most profitable and best. Go into your neighbors' orchards (not by night, as some do), and see what is *bearing* and what is best, and select accordingly.

Notes From the College Farm.

By Prof. Chas. E. Bessey.

POTATOES.

Ed. Pomologist and Gardener:—On account of the attacks of its numerous enemies, or the somewhat unpropitious weather of this season, the Colorado Potato Beetle has not proved to be very destructive. In the spring it started out in great numbers, and threatened to sweep every potato vine from the country—but the little "lady dirds," or as commonly called, the "lady bugs," (*Hippodamia* and *Coccinella*), soon made a vigorous onslaught upon the egg clusters, thus materially reducing the first brood. Since then the same enemies seem to have kept up the good fight, aided by several other useful allies. The dashing rains of the summer have been somewhat unfavorable for the beetle, and correspondingly favorable for the potatoes themselves.

E. G. C's remarks upon the value of experiments are certainly very just. I fully agree with him when he says, "that to be of value they require to be made by half a dozen persons in as many different parts of the State, for a series of years." That sounds as if the writer at least knew the province and value of experiments. A single test made, say here in the center of the State, is of but little value so far as any immediate results are concerned; it may, however, be of value, when taken along with others made elsewhere by careful experimenters.

Would it not be well, Mr. Editor, to invite contributions upon this subject of the most nearly beetle proof varieties? A simple record of observations would suffice in most cases; and these when compiled and compared would afford some results of real practical value to the farmers and gardeners of the State. I should be much pleased to receive communications from parties in different portions of the State upon this topic, as it is one in which I feel a great deal of interest, and to which I intend to devote a considerable portion of my time for the next few years.

The crop of early potatoes was very good—the Early Rose showing itself to be especially valuable for general culture. This variety was largely planted in this vicinity in the spring, being held in high estimation by most of the farmers. The later crop is coming on finely, and now promises an abundant yield. This last is made up mostly of the Peachblow varieties, they having shown themselves to be the best adapted for this climate and soil, being also less attacked by beetles than many other sorts.

TROPHY TOMATO.

Last spring I procured for trial a package of the seeds of this new tomato. Gave it no special culture, but allowed it to take its chance in the large bed where the Extra Early Red, General Grant and Tilden were. Did not feel very enthusiastic over it to begin with, as I do not feel like taking stock in every new thing that comes up. Am compelled, however, to say that at present it fully comes up to its recommendations, and shows itself every way to be a very desirable tomato. This variety was originated by Geo. E. Waring, Jr., of Newport, R. I., and cultivated for many years before being brought before the public. The advantages claimed for it are, superior size, form and solidity, good flavor, and a reasonable degree of earliness. There are some now growing in our garden which fully prove the justness of the claim. I shall have no fears in recommending the Trophy to our farmers and gardeners as one of the best. I should not however wish to be understood as recommending anyone to plant *it alone*, for being a large grower, in unfavorable seasons it might not do as well as some of the smaller kinds. Try it next year, everybody, and feast yourselves upon one and two pound tomatoes.

"Strange" Indeed.—The Northwestern Farmer (Ind.) says: "A friend informs us of a singular exemption by the late frost. On a farm four miles south of Bloomington, this State, lying on a ridge between the branches of White river and at an elevation of some three hundred feet above their level, is a peach orchard of one thousand trees, the fruit of which escaped injury entirely from the frost of April 22d. All other peaches in that vicinity were destroyed."

In penning the above the writer betrays a most "singular" lack of observation. We have always supposed elevation to the extent named, comparatively exempt from late spring and early autumn frosts. Is it not so?

☞ Several bushels of tea seed have been received at Santa Barbara, California, from Japan, for planting.

The Vineyard.

Vineyard Work for September.

By The Associate Editor.

There will not be much work to be done this month in the vineyard if the vines have had proper attention last month, and the ground kept clean and well cultivated. In fact from this period out there should be nothing done to stimulate growth, but rather retard it, so the wood will mature well and be thoroughly ripened, that it may withstand the winter better.

Although the vines need but little attention, yet it will be a very busy time with the vineyardist to gather his grapes in proper season and sell them or to make into wine. If to be made into wine they should be left on the vines until they are thoroughly ripened, and then gathered only in dry weather, after the dew is off and all defective berries removed. Then crushed or mashed, pressed and made into sweet or fermented wine as you may desire, without the addition of either sugar or water, for we have no more faith in their use in the manufacture of wine, than we have in the administration of medicine in health, for both are not only useless but injurious.

Grapes.—Foreign and Native.

By George Haskell, Ipswich, Mass.

Ed. Pomologist and Gardener:— The grape s the king of fruits. When sweet and well ripend no other fruit is so luscious, healthful and nutrious. Indeed, in the large grape-cure establishaents in the south of Europe the patients—invalids —eat little else but grapes for weeks, and as many s elght pounds per day are often eaten by one peron, who recovers and grows fat on them. But it akes one shiver to think of eating one quarter art of that quantity of the Delaware, Concord, or ny other kind grown in this country. We have ere, however, all the best grapes of Europe, but ur atmosphere is so loaded with the spores of milews and rusts that they cannot be grown in any art of the country, this side of the Rocky Mounains, except under glass. They are thus grown in the older states for family use, and to some extent for market, but only the Black Hamburgh can be grown for sale at a profit. The muscats do not set well, and are more injured by cool and cloudy weather, even under glass; and the Frontignacs are poor growers and poorer bearers. And although the earth does not yield a more luscious fruit than the Grisley Frontignac yet no market gardener could get a dime for a dollar in raising it for sale. If we had a grape nearly as good as the foreign that would grow well in the open air, there is no limit to the extent to which it could be profitably grown for eating, for drying and for wine. If good and well ripened it could be eaten in large quantities without injury to the stomach or bowels as a healthy and stimulating food, instead of the vast amount of dead flesh which is now devoured.

Shall we get such a grape from the many and varied experiments which are now in progress in different parts of this country? I think so; I have no doubt of it. In a few years we shall obtain vines that will withstand the evil influences of our climate—the cold of winter and mildew of summer —and bearing fruit equal to the foreign. My experiments, carried on through the last fifteen years, justify this prediction; for though they have not yet produced the desired grape, I think they have taught me how to proceed to get it. I have raised more than a thousand hybrids from more than fifty different crosses, of different native and foreign vines, and having ½ and ¾ foreign blood. More than one hundred are in fruit this season, and more than forty of them for the first time. Some of those that have fruited before have healthy vines and poor fruit, and some quite good fruit, but vines subject more or less to mildew, but not more so than the Concord, which grows by their side. The North-eastern states, however, can never succeed in growing grapes as a general or wine crop. The average heat of our summer is too low, and our atmosphere is too moist for the production of the richest juice and highest flavor. If we can grow enough for our people to eat we shall be fortunate, for each person would eat a great many if they

were good and as cheap as other food, as they certainly might be if grown in the open air.

But until better kinds are obtained, every family having a rod of land might and should have a supply of those kinds that grow well and ripen in the vicinity. The owners will thus acquire a taste, a desire for the fruit and get acquainted with the management of the vine, and will be prepared and eager to engage in the propagation and production of better grapes when they can be obtained. Such grapes with hardy and healthy vines, will cover many of the prairies of the west before many years and will enable it with its fertile soil, dry atmosphere and warm summers, to give us an abundance of luscious fruit and *pure* wine to gladden the heart and strengthen the frame.

The Foreign and Native Vine Compared.

By J. S. Lippincott, Haddonfield, N. J.

It is well known to intelligent growers of the European vine, that it is not the cold of our winters, nor the heat of our summers, in the middle latitudes, at least, of the United States, that offer the greatest impediment to the growth of the Black Hamburg, Chasselas, &c., out of doors in the open border. In seasons in which the due proportion of moisture is present, good crops of these fine varieties have been grown in the open air; but if the next season has been dry, the leaves have fallen; the fruit has shrivelled; and frequently the year following has found the plants injured beyoud recovery. Even the most favored aspects in the city of Philadelphia, will not permit the continued growth of the foreign vine out of doors, as we have learned by personal experiment, in several instances.

Most of our native varieties, when grown in the vineyard, exposed to drying winds of our summers, or to the sudden cold of our varying June, July and August nights, suffer in the same manner as does the foreign vine, as we have observed by comparison of effects upon both, under the same influences, side by side. The constitutions of the European and American grape vines have much in common. They open their buds under the same temperature in spring, require the same increments of summer heats for their healthy growth, the same autumnal warmth for the perfect maturation. They also demand the presence of greater or less proportions of moisture around them at critical periods, and a considerable quantity at all times; though, in these respects, the foreign vine is not disposed to endure extremes so well as does its less refined brother of the West; and the less refined, the more enduring among our natives, as is shown by the comparatively healthy growth of the Concord and Clinton, and the pre-eminent sensibility to atmospheric changes exhibited by the Catawba, the Delaware and the Rebecca.

In Europe the vine has been known for ages to have been peculiarly the growth of definite climatic conditions, and its zones have been pretty accurately defined. The same appears to have been the case with American native vines, and its zones; if successful culture could be as clearly defined, were the conditions of moisture in the air, the same as those of Western Europe, or as constant in their proportions, and the climate as equable, or as free from extremes here as in the Western States of Europe. Even in the "Land of the Vine," all seasons are not alike propitious, and it is sometimes seriously injured, but never is it so utter a failure as with us. If the vine fails for one season in Europe, it may be succeeded by a season of extraordinary yield, repairing the loss of former years. But here the loss of the crop is accompanied by loss of the leaf, and consequent enfeebling of the plant, so that it seldom bears again.

The season of 1863 was very propitious to the vine in many parts of the United States, and held out promises of success in the growth of many new varieties of grapes. The vines were young, had grown admirably even, in consequence of a combination of circumstances highly favorable; a greater product of superior grapes was exhibited than had ever before gladdened our eyes, or filled us "with visions of the to be." The three following years told another tale over a large part of the interior of the Northern States. The favoring circumstances did not attend at our bidding; the vines having grown well the preceding season, did their best in 1864; they observed the call of temperature to the degree pre-arranged for their awakening; they spread their leaves and opened their bloom at the appointed time and promised still better than in the past; and that promise would have been fulfilled had there not come on the wings of the Westerly wind a blast which struck the tender leaves, shrunk up their expanding growths, lapped up with its thirsty tongue the life-sap of their vessels, and brought death into the little world of life, and with it the seeds of mildew and rot, which rioted on the small relics of vitality, and our hopes vanished like the mist into thin, dry air. The next season found the finest Delawares, Rogers, &c., entirely destroyed, even to the root. The vines that survived were again prostrated by the unpropitious seasons of 1865 and 1866, until of ours, very few are now living, or if living have made any growth, except the Concord and Clinton, which we consider scarcely worth retaining in our grounds.

It may be asked "how do you know that the air was thus dry in each of these seasons, and that this dryness was the tending or predisposing cause of our failure?" We answer that the dryness or mois-

ture of the air can be as readily determined as can its temperature be ascertained. We can tell not only whether it is very dry, or very moist, but what proportion of moisture is present; and farther, can determine not only how much the vapor may lighten the air, by rendering it buoyant, even to taking the pressure off the barometer to the one thousandth of an inch, but can as readily weigh the amount in our scales and tell to the one-hundredth part of a grain, how much exists in each cubic foot of the atmosphere around us, at any time, and as often as we choose to experiment on and calculate it. All this has been frequently done, and that done hundreds of times during the summers of 1864 and 1865; and they thereby proved to have been very dry. Moreover, this dryness, when in extreme was shown to have happened before or during the the access of damage to the vines. Now, if such seasons visited us but at long intervals, in the interior districts, we would not have so much cause to deplore them; but unfortunately, these extremes of dryness and consequent sudden reduction of temperature, this accompaniment, is no new thing over a greater part of the Northern States, East, of the Rocky Mountains. This periodical dryness of the air appears to be the rule; is the difficulty we labor under in our climate as respects the cultivation of the grape in the vineyard. It no doubt serves many useful purposes. It may enable the farmer to grow a crop of Indian corn in much higher latitudes than he could otherwise perfect it, as it is an accompaniment also of high heat. It may enable him to bring to perfection many other semi-tropical plants in districts where they could not be grown, uch as the sweet potato, sorghum, &c., but it renders our climate one of extremes, and unfits it, when these extremes most prevail, for the profitable culture of the vine, either foreign or native.—*Farm and Fireside.*

Grapes.—Training and Pruning.—Best Fruit.

The following paragraphs from the *Pacific Rural Press*, on training the grape low for the production of fruit of the highest quality are sound. This system of low training is no less important or applicable to Iowa than to California. Years ago in common with others, we held the notion that to attain the best results in grape growing—size quality and early maturity—the higher the training and the more sunlight that could be brought to bear upon the fruit the better, but a little practice in that direction soon exploded the theory. The largest, swectest, and best flavored fruit to our taste, is to be found on vines trained about two feet from the ground and well screened from the direct rays of the sun. As to what the *Press* says on the "time of pruning" we have no experience, but give it for what it is worth.

"General experience in this State, where the atmosphere is so dry and pure as to induce a low degree of temperature, in the night time, as compared to that of the days, has proven that low training and pruning is the best. The grapes being close to the ground feel the influence of the heat absorbed during the day by the earth, and given out during the succeeding night; while those higher up are exposed to the greater extremes of the atmosphere. Hence, grapes near the ground, or on low trained vines are found to ripen in the same vineyard in this State, from ten days to two weeks earlier than the same varieties trained over trellices. It is also found that the former are fairer, larger and more highly flavored than the latter.

Some claim that the mildew is not so apt to affect the grape grown on high trained vines, where the atmosphere circulates freely, as on those close to the ground. We think reason and experience are both in favor of the opposite opinion. Mildew on a growing plant is not induced by the same causes as mildew on dead and decaying matter. The extremes of heat and cold, impeding the natural flow of the sap is believed to be one of the chief causes of mildew in the grape vine. As these extremes are greater at a distance above the ground, so the inducing causes of mildew are proportionately greater; and we find experience agrees with reason on the subject.

We think that the *time* of pruning has more to do with mildew on the grape, than the manner; as we shall show hereafter In accordance with the general experience of the best cultivators, we would recommend that vines be so trained and pruned as to form the head from one to two feet above the ground. The use of stakes may thus be entirely dispensed with, and quite an expense saved."

TIME OF PRUNING.

"When the object is to induce a rapid growth of wood, as in young vines, before they are at proper age to fruit, the pruning should be done in the fall or fore part of winter. If, however, it is desired to produce less wood and more fruit, the time of pruning should be delayed until later in the season. The time should also be governed by the soil, to some extent. On elevated land and a dry soil, where the vine naturally forms but little wood, and is inclined to bear too much fruit, pruning should be done early in the fall, after the leaves have fallen. Then when the sap starts in the spring it will swell the buds with force, and send out strong canes and less fruit and spurs.

On the contrary, vines growing on rich, alluvial soil, where too much wood and too little fruit is the natural rule, this tendency may be checked to a great extent, by delaying the annual pruning until late in the spring—even so late that the leaves on the canes are forming. By cutting back the canes

of the past summer's growth, at this time, leaving but two or three buds near the base, these buds would then swell evenly and develop strong fruit spurs and as a general thing, the result will be a good quantity of well developed fruit stems and blossoms."

Supports for Grape Vines.

We remember reading, some years since, a paper from the "Proceedings of the Philadelphia Academy of Natural Sciences," in which it was shown why grape vines grew better when running over trees than anywhere else. There is a natural motion in the tendril of the grape, and the amount of food required to produce this is a great strain on the function of the vine. This motion of a tendril in search of something to cling to, continues about ten days, when the tendril dies. If the plant is clambering over a tree, the tendril finds something to cling to almost as soon as it is ready for support. Then there is no waste of force in useless motion. The whole energy of the plant is spent in producing healthy growth. It is a little remarkable that no use has been made of this discovery in practical grape culture.

In Lombardy and other portions of Italy, living trees are very generally used as supports or natural trellises for the grape vines; and it is not improbable that this practice may be profitably adopted, to a certain extent, in this country. It is generally considered that the fruit of a grape vine, supported by a living tree, seldom or never rots; and thus one point is gained, by this plan, in cultivating the tender and delicate varieties.

We know that the European system of close planting and close training will not do for our free-groing and more vigorous American grapes, and we therefore suggest a much greater distance in planting and wider opportunity for expansion—including the live tree supports—to all who desire to solve the problem of successful grape culture with our native varieties.—*Cor. Our Home Journal.*

Grape Rot about Cincinnati.—At a meeting of the Cincinnati Horticultural Society, June 22d, Dr. Warden stated that the much dreaded brown or speck rot showed itself on the 9th and 10th of the month, when the grapes were larger than buckshot, and so violent was the attack that many vines were wholly despoiled of their fruit in a few hours. Catawba, Concord, Iona, Hartford, and the Roger's Seedlings are almost totally destroyed. Ives and Delaware, spotted.

"Different modes of training and trimming seem to be alike affected; those on arbors and trees, untrimmed summer and winter, are attacked, and some of them as severely as those closely trimmed and trained to stakes."

California Raisins.

F. G. Jeffers, Visalia, Tulare Co., Cal., has been manufacturing raisins from the following grapes:—Rose of Peru, Muscat of Alexandria, and Fiher Zagos. These raisins are pronounced by good judges excellent. Mr. Jeffers makes the following statement concerning this product:—"I gathered and spread on scaffolds in the sun, about the middle of September, after they are partly dry, I put loosely in large boxes under cover to finish drying; in about six weeks they were dry enough to box. The Rose of Peru averaged this year about forty pounds to the vine; it took three pounds of green grapes to make one of dry. The Fiher Zagos averaged twenty-five pounds to the vine, and it took three pounds to make one of dry. The Muscat of Alexandria averaged ten pounds to the vine, and took only two pounds to make one of dry. The vines are seven years old, and have brought grapes the last four years. Our soil is a light, sandy one, and slightly impregnated with alkali. I have not irrigated my vines since they were two years old."

Layering for Strength.

With some varieties of grapes in France it is found necessary for maintining a paying amount of fruit to layer the vines annually, thus increasing the number of roots. A trench is dug fifteen or twenty inches long, commencing at the head of the vine, and as deep as needed, eight or ten inches; into this trench is thrown a quantity of good compost or rich top earth.

The vine is bent down and carried along its bottom, a stone or block placed upon it, at the point where it is bent up, and the trench filled with earth. It is manifest such an operation will largely increase the strength of the vine. With the Iona, naturally weak in the root, we have resorted to this mode of improving its vigor, and with decided advantage.—*Fruit and Wine Reporter.*

"No. 13," Hussman and No. 1.

Ed. Pomologist and Gardener:—It is not a good sign, that Prof. James Mathews, or any other man writes so exclusive an article on "No. 13." He ought to know no East or West.

Hussman is incorrect as to the late ripening of Rogers' No. 1 at the East. It is the best, or one of the best and most valuable in the Cayuga Valley. I had the honor to write of its wine qualities to Mr. Hussman before he knew of it. He ought to acknowledge it my due.

S. J. Parker, M. D., *Ithaca, N. Y.*

Pea Nuts.—A Chinaman in California, raised twenty tons of pea nuts last season and sold them in the Sacramento market.

Miscellaneous.

Among the Orchards.

Within the last month, in company with Mr. James Smith and Rev. J. A. Nash, we have spent some time in visiting some of the principal orchards within a radius of ten miles from this city. And to them are we indebted for interesting reminicences of the early days—the trials and progress of fruit growing in Central Iowa, and in Polk County in particular. What a revolution has come over this scope of territory within the memory, and under the eye of these two old and honored residents of Des Moines! Twenty-two years ago there were within this named area, but one small orchard of a few seedling apple trees, and one of like dimensions of grafted fruit. Of the former, not a tree now stands to commemorate it, and of the latter, but one or two.

In place of the broad expanse of prairie and woodland of that day, with its stillness unbroken by aught save the whoop of the primitive lord of the soil, or the yelp of the wolf, the hum of civilization now fills the ear, and we walk over beautiful farms and amid Pomona's richest gifts. We see on all sides fruit trees bowing down in humble submission to their precious burdens, and from which may be gathered the representatives of almost every variety of the apple worthy of note, grown within the length and breadth of this vast country!!

As we walked through the orchards with their branches resting upon the groond under their immense burdens of the choicest apples we have ever looked upon, we were more deeply impressed than ever before with the fact of the beneficial results of one man's labor in a new country. Twenty-three years ago, when Central Iowa was mostly in its primitive state, hundreds of miles from railroad, Mr. Smith found his way to this place from old "Kaintuck," and stuck his stake on the very spot where he now resides, and commenced a nursery. He believed "that what everybody said *was not true*." "You cannot raise fruit in Iowa," was on every tongue. He went patiently to work and started his nursery. Introduced a large number of the best known varieties of the apple, tested their adaptation to our soil and climate, rejected the unreliable, and tried new ones. He sold the best of trees to farmers at a very low price, visited the young orchard growers, encouraged them to hope, taught them how to care for their trees—and in a most practical manner, by cultivating and rearing upon his own grounds one of the finest young orchards ever seen in any State, demonstrated the fact that both fruit trees and fruit could be raised in Central Iowa.

The jealous interest that Mr. Smith has ever felt in keeping up a correct nomenclature of the apple is worthy of special remark. In later years, when other nurserymen can e into the country, the same anxious care that their stock might be true to name manifested itself. Always ready to give a helping hand or information when and wherever needed, rejoicing to see a land, made so fair by the hand of nature, clothed with trees and fruit. And now, with eye undimmed, and natural force unabated, he walks among these trophies rising from over a score of years of labor and sacrifices as enthusiastic a pomologist as ever.

Sometimes monuments are reared over the tombs of public benefactors, but the proudest monument we have seen is that reared in the countless orchards loaded with fruit, now seen in Central Iowa, and on that monument is written in ineffaceable characters the name of Polk County's first and best nurseryman—the name of James Smith.

Our first call was at the cozy home of Dr. D. V. Cole, two miles south of the city, who showed us through his orchard of about two hundred trees, fourteen years set. For some years past this orchard has fruited liberally, and promises well for the future.

To the southwest a mile or two we come to the orchard of J. H. Given—a younger orchard of four or five acres, showing a fine crop of fruit. Here we found for the first time, the Chenango Strawberry, an apple of exquisite beauty and the tree a model of perfection. This apple is highly admired by all who see it. Shall illustrate and describe it at another time.

Our next call was upon Mr. L. T. Filson, three miles to the south-west. Mr. Filson purchased this place a few years since, with the orchard well under way, and knew but little of its early history. It embraces some six to eight acres, and shows evidence of good care and skillful management.

Thanking Mr. Filson for kind attentions, our course was from thence eastward three miles to the large farm and orchards of Mr. H. C. Hargis, where we were made the recipients of the generous and proverbial hospitality of his household. The inner man being duly cared for in the adjustment of a good dinner, such as is found only at the table of a well regulated farmer's house, we went out under the pilotage of our host to feast the eye. Mr. H.'s main orchard numbers about one thousand trees.

HOW THIS ORCHARD WAS MADE.

As this orchard is one of the very best in the State of its size, and its commencement rather novel, we will say a few words of its early history and growth. The ground was set to apple root grafts fifteen years ago last spring by Mr. James Smith. At the same time he laid the foundation of

the orchard. He planted at regular distances among the grafts, yearling trees, trimmed up and headed back to a single stem, eight inches in height. From that small beginning, but fifteen years ago, stands the orchard of to-day, laden with a crop of fruit that in bushels may be reckoned by the thousands. This orchard was made square out upon the open, bleak prairie, and has never felt the least protection from the sweeping blasts of winter. What have the croakers on four year old nursery trees, and especially on the great importance (?) o windbreaks to say to this! Of course this orchard has received the best of care, a sure guarantee to successful orcharding in any part of Iowa. Since the removal of the nursery trees the ground has been variously occupied. Sometimes with a crop of oats and invariably fed off by hogs. At other times in grass fed off in the same way, at other times left to itself. But very little trouble has at any time been experienced with insects or blight.

Turning north we made short calls at the orchards of Mr. Hays, Mr. Elliott, Mr. Blye, Mr. John Smith, closing up the day's observations at the home of Mr. James Smith. After a run through his orchard grounds, and partaking of the bounties of his generous board, we turned homeward, feeling wiser for the day's jaunt. We were glad to see that Mr. Smith's old orchard is gradually recovering from the effects of the canker-worm, and is making a fair show of fruit. But to sum up.

MOST PROMINENT VARIETIES.—WHAT TO PLANT.

Of varieties in the several orchards visited, White Winter Pearmain, Willow Twig, Jonathan, Winesap, Fameuse and Red June stand prominent, and in our estimation (adding Benoni, Wagoner and Ben Davis,) may be set down as *the basis* upon which to rear a first class commercial orchard in Central Iowa; and to finish up, may safely be added thereto Domini, Westfield Seeknofurther, Rambo, Lowell, Early Pennock, Porter, Cole's Quince, Dyer, Golden Sweet, and other sorts doing quite as well. For fruitfulness, White Winter Pearmain excels all else this season; and we are gratified to find that the fruit is less marred and disfigured by scab than for some seasons past. In some orchards visited it is clear of all blemish — large and fair as of old.

BLIGHT AND INSECTS.

Of blight we see less all through this region than for many years past. About the only variety showing it seriously is Tallman, and strange to say, hitherto one of the most healthy and robust of trees. And we are sorry to see in some orchards that Raule's Jannette, that good old standby (*Neverfail*), is blighting some, for the first. In Dr. Cole's orchard some kind of blight or mildew has attacked the leaf of the Rambo. It is something new, and what it may amount to remains to be seen.

Of the Codling moth but little is seen, and the Leaf Roller has disappeared entirely. The Canker Worm made but a faint demonstration at the commencement of the season; while that most insiduous of all orchard enemies, the borer, is everywhere well understood and being hunted *to the death*.— On the whole, we see a most gratifying decline of all the drawbacks on fruit culture in this region. In all this we have solid encouragement to plant trees and to raise fruit. So mote it be.

Wayside Random Notes.

It came in our way a few days ago to make a short call at the home of our esteemed friends, Dr. James Weed and lady, near Muscatine. A visit, though brief, as ours necessarily was at the time, to their pleasant suburban residence, is at all times enjoyable, for the Dr. is one of the most communicative and social men that we have the pleasure of meeting. Though crippled in one limb, he is one of the most active and energetic business men often met with, and always has something new to show us and to talk about. He manages a farm, orchard, and nursery, covering between four and five hundred acres — has in orchard about 6000 trees, mostly of a bearing age. The nucleus of all this was in a half bushel of apple seeds, planted in the spring of 1842, and his oldest apple trees, the Benoni, were started from the bud or graft in the spring of 1844.

NEW WAY OF GROWING SWEET POTATO PLANTS.

As we passed out to take a drive through the extensive farm and orchard grounds, our attention was directed to a new method of the Dr.'s getting up for growing sweet potato plants, whereby the hot bed in common use is dispensed with. Bottom heat is supplied by underground flues, and the beds protected from cold night air and inclement weather by the use of wooden shutters. The beds are made six by twenty feet, with a single shutter to each, and so made and adjusted that one man can open and close one of these large beds in a moment's time by simply raising a lever. The Dr. grows plants by the million for market, and finds this method a great improvement on the old way.

We next enter the extensive orchard grounds and pass along between long rows of the largest apple trees that we have seen in the State, and holding immense crops of fruit. The largest and most fruitful trees are the Benoni, a special favorite with the Dr. And well it may be, for he says the Benoni gives him more money than any other tree in his grounds. It gives him a crop when almost every thing else fails. The fruit bears shipping better than any other summer or fall apple, and wherever known commands a better price by twenty-five per cent than any other sort. His crop this season is very large, and he expects to make shipments to Denver, and to other points in that region.

As to other sorts, he regards Fameuse highly, finds Willow Twig the best of all keepers, reckons Porter among the most desirable, Golden Sweet indispensable, Sweet Bough the queen of perfection among sweet apples, Winesap and Yellow Bellflower unsatisfactory, Red June does well with high culture, Early Pennock profitable. His choice of five varieties in the order of their appreciation is, Benoni, Jonathan, Porter, Fameuse and Willow Twig. Such is the opinion on sorts of one of the oldest and most intelligent orchardists in Iowa.

HOW HE TRAPS THE CODLING MOTH.

The depredations of this loathsome pest of the apple has for years, annually depreciated the commercial value of the apple crop of the country millions of dollars. "How shall we get rid of this intolerable pest," has been a mooted question from every lip. Dr. Weed has studied out and put in practice a very cheap and simple device for the purpose, that throws straw ropes, rags, sweetened bottles, clothes wringers, and such like appliances far in the back- ground. He has been using it two or three years, and has become well assured of its feasibility and perfect success. A strip of cloth 1½ inches in width is fastened around the trunk of the tree a little below the branches, by sticking a large tack in one end with the head projecting, to which the other end with a short slit is hitched. Under this band the worms seek a shelter where they undergo transformation in the chrysalis. The band is applied about the middle of June, and for five or six weeks at intervals of ten or fifteen days, unhitched, rolled back with one hand, and all chrysalis found, stabbed with a sharp pointed knife in the other. The band is then replaced for another crop. It requires but a very few moments to go through the whole operation, as we found by trying it. We were told that as many as seventy or more of the chrysalis had in some cases been taken from under a single band at one haul.

Illustration. *a*, Band.

EXPERIMENTS IN CHESTNUT GROWING.

At an early day of his nursery business Dr. Weed started a nursery of chestnut trees, and which was the first experiment of the kind known to have been made at that time any where in the West. The results of that experiment as now seen upon his farm, is worth a journey of many miles to see. One of the principal avenues of the farm is bordered on either side with long rows of chestnut trees transplanted from the nursery, and many of them are now in bearing. A very few years will suffice to make these trees a source of profit, and the avenues they line most delightful walks and driveways. The Dr. finds that the chestnut from the seed sports some. Among his trees as they come into bearing, he finds quite a difference in the fruit. He has one tree that produces fruit very much superior to the common American chestnut—so large and fine that he intends to propagate it by grafting. Let no man believe that chestnuts can't be raised in Iowa.

Among other things on the place is a cider mill of the Dr.'s contrivance, which is a nondescript in its way. We should think by its looks that it might squeeze apples to "etarnal atoms," and convert them all into juice.

Having spent a half day and tarried one night with the Dr., we were early on the way to friend Foster's, with whom we had intended to spend the day in looking through his nursery grounds and extensive orchards, and to take an up river boat in the evening. But calling at the office on our way we learned with much regret that, on account of very low water, the boats were very irregular, and that the point business engagements required us to make by the following morning could not possibly be reached by boat. In this dilemma we felt compelled to take the first train of cars, to leave in a few minutes, and to very reluctantly forego a day's visit, full of pleasant anticipations, to one of Iowa's best pomologists; but we mean to make it yet at no very distant day.

Marketing Apples.

ED. POMOLOGIST AND GARDENER:—I hand you some timely remarks on marketing apples, selected from my note book. Those who order apples from the producer, at a distance, with remittance, are often most egregiously swindled. If you complain, "Oh! it was the fault of the packer—can't at all times have an eye on hirelings." I sent to a certain Illinois fruit grower last fall for five barrels of sound first class apples—naming varieties. The apples came, but my conscience, what apples! In a barrel of Jonathans, one-fourth were not above the size of respectable hickory nuts. And worse than that, there was not one peck, all told, that was not gutted by the apple worm. By the way, Mr. Editor, is there no way by which this intolerable nuisance of the apple cannot be got rid of? [Exactly—you will find it in another column.—ED.] When one of the barrels was opened that had stood four or five weeks, and the fruit taken out, I found many worms that had left the fruit and hid away in the crevices of the barrel, where I suppose they were undergoing transmogrification for a new start in life. But for the extract.

"In the marketing of apples it is the practice with some to put in all sizes and qualities as they are found on the trees, both sound and unsound. This we have so often seen, that it appears almost, if not

quite the rule. Of course when such fruit reaches the city market it is at once assigned to its place, and a corresponding price is determined for it. But too often this mixed fruit is sent to customers along the railroads, at small towns, who have ordered and paid for it in advance.

The law is plain on this point, that all goods of this kind be merchantable. But the remedy in this case is inadequate, and only the reputation of the farmer suffers, but not in dollars, for the demand is good, and some new customer comes up to be victimized. In most cases, as much or even a better price could have been obtained by carefully assorting the fruit and selling the best at a higher price, and either make cider of the refuse or sell it at a less price. No fruit grower can afford to send bad fruit to his customers, even if he gets the pay in advance, for it will sometime come up against him when he may least desire it."

VICTIM.

Dubuque, Iowa.

Chickasaw Plums.

BY H. H. MCAFEE, MADISON, WIS.

At a late meeting of the Northern Illinois Horticultural Society, at Rockford, the Committee on Chickasaw plums, of which I was a member, reported in substance, as follows:

A class of plums derived from the *Prunus Chicasa* and known under various names, as "Miner," "Townsend," "Hinkley," "Isabell," "Peach," Chickasaw, &c., is coming into general cultivation in the States of Illinois, Wisconsin, Iowa, Minnesota, and Nebraska, and where tried are giving general satisfaction on account of the following points of excellence:

1. The tree is most hardy and long lived of any plum tried in the localities named.
2. Its fruitage is abundant and continuous.
3. The tree and fruit is less subject to injury by insects than is any other plum, the curculio larvæ being extremely rare, and the gouger not common enough to injure the crop.
4. The quality of fruit of the best varieties is good, and the fruit is everywhere popular and meets with ready sale at good prices.
5. For profit to the planter these plums are unexcelled.

The history, so far as now known, of the oldest stock of these plums planted within the territory named above is as follows:

In 1832 a man named Knight brought from southern Ohio by boat to Galena, Ill., a stock of small trees, which he disposed of to the late Major Hinkley and others. The trees planted by Major Hinkley are still in full vigor and bearing and may be seen at his old place near Galena. The year following the first importation, Knight brought out a second lot of trees and planted most of them on Mr. George Townsend's farm in the eastern part of Jo Daviess County. From these stocks the most if not all of the trees disseminated under the various names mentioned above have sprung, and as Major Hinkley was largely instrumental in securing the general cultivation of the plum, generously giving them away to his neighbors and friends, and as he grew them first in the west, it was decided that the name "Hinkley" should be, with more propriety than any other, applied to all of the plums springing from Knight's importation (except seedlings.)

The name "Miner" applied by Mr. Barber at a late date, in honor of Mr. Miner from whom he derived his trees, is not defensible on any rules of pomological nomenclature, and the other names mentioned above are in a like manner objectionable.

As this class of plums is variable in their seedlings they must be propagated by extension, and not from seed to insure satisfactory results, the seedlings of the wild Chickasaw frequently producing a miserably worthless fruit of small size. This Hinkley plum is so unlike them that it deserves a special designation referring to its known origin, and under which it may be generally distinguish d from its wilding progenitor.

So many varieties are in cultivation, and many of them of poor quality, owing to the planting of seedlings, that it is most desirable that Nurserymen should supply themselves with genuine stock, and discard all others, and hereafter propagate by root cutting or in some other way so that they may be sure and have the true variety.

[The reading of the foregoing paper at the late meeting of the Wisconsin State Horticultural Society, was followed by the passage of a resolution adopting the name Hinkley as that by which the Society would recognize the plum in question, hitherto known principally in Wisconsin by the name Miner.—EDS. WESTERN FARMER.]

Price's Sweet.

ED. POMOLOGIST AND GARDENER:—As there appears to be some controversy about the identity of "Price's Sweet," I will stick in a word. I have an apple under that name and send you an outline from a specimen just taken from one of my trees. I am no hand at describing fruit. It is of the color of the Rock Rimmon. It is ripe in September, but will keep till January. It is a pleasant sweet apple, rather juicy, firm flesh. It is a good and early bearer. I have had trees blossom four years from the graft. In hardiness the tree stands next to Duchess, I knew the apple in Ohio.

CHRISTIAN STEINMEN.

Colesburg, Iowa.

The Vegetable and Flower Garden.

Garden Work For September.

By the Associate Editor.

The principal work to be done this month is to keep your crops well cultivated and free from weeds. Cabbages, winter radishes, ruta bagas and late beets should be frequently stirred, to make them grow fast and tender. Keep your celery earthed up as it grows. All onions not taken up should be attended to at once, or they will start and grow again. Onion sets should be planted, if not already done, for an early crop next spring; but for a late crop not before the last of next month. They should be planted deep, say three inches, so they will not leave out in the winter; plant in drills eighteen inches apart, and six inches apart in the drills; four inches, or even three apart will do, but they will not grow so large, unless you pull or thin them out for immediate use in the spring. Spinage can now be sown for fall use, and the last of the month or beginning of next, for early spring use. Let no weeds go to seed in your garden if you wish easy cultivation in after years; you will find it much the cheapest in the end. Nearly all kinds of budding can be done this month, and as long as the bark peels freely. This is a very convenient way of propagating many plants with little stock; but we prefer grafting when it can be done, being of much less trouble.

The Vegetable Garden.

By W. H. W., Connecticut.

Ed. Pomologist and Gardener: A few implements especially for the garden are essential to its convenient and thorough culture. The plow, harrow and cultivator are needed on every farm, and these can be used in the garden. Aside from these we should have a digging fork, spade, pronged hoe, steel rake, scuffle hoe, garden roller, marker, seed drill, dibbler, fine rose watering-pot made from best double or xxx tin, reel and line, garden trowel, hoes of different sizes, shovel, wheelbarrow, hand glasses, cold frames, hot bed frame and sash. These implements should be the best of their kind — the first cost may be a little more, but the ease and pleasure of using good and light tools is much greater and more satisfactory, as well as their greater durability; and when once obtained they should be kept well painted and oiled, the wood work, and always taken care of by cleaning and housing after using. Have a place for everything when not in use, and see that everything is in place. *This is the great secret of having and keeping good tools.*

Hot Bed. — This and the cold frames are more properly adjuncts of a good garden than implements, and should be so described. The hot bed stands in the same relation to the farmer's vegetable garden that the forcing house does to the professional and market gardener. Being of smaller cost, it can be made much more generally available. Something of this kind is needed in order to start and forward many varieties of vegetables and plants, that we may bring them to maturity earlier than can be done in the open air, and also that we may grow some plants which require a longer season than we can otherwise have.

Size of Sash. — The most convenient and general size for sash to hot beds is three by six feet, made out of one and one-half inch clear pine. These are made without cross-bars, the glass being allowed to lap about one-fourth an inch, pinned and puttied, not bedded to the stiles, and back puttied in the laps. Rods of iron are put across near the middle to hold from springing, etc. These should be well painted with white lead and oil as well as the frames. The frame should be made of one and a-half inch stuff, with tenons or staples and mortises to put and hold them together at the corners, so that they may be taken apart to store when not in use. The frame should be made six feet wide and of length to accommodate any desired number of three feet sash, with rebatted rests for the sash to rest and slide on; cleats are put on the end pieces and back of the frame also for the sash to rest on, the sash resting on the beveled top of the front side. Make the back side of the frame twenty-four inches high and the front fifteen, the ends sloping to match, allowing the ends to rise the thickness of sash above the front; nail strong cleats across the end pieces, six inches from the bottom, for a plank to rest on for weeding, etc. We want the slope of frame to give inclination to the sash to shed the rain and receive the sun's rays. The sash should fit the frames closely, so as to retain heat

and exclude cold air, etc. The formation, management, etc. of the hot bed must be deferred to another article, closing this by noticing cold frames.

Cold frames are made the same as hot bed frames, with this difference: the back side is not as high, giving less slope to the sash; the back is only about six inches higher than the front; these are used where bottom heat is not essential, for sowing seed of lettuce, cabbage, cauliflower, etc., and also for preserving such plants during the winter. They are also useful in forwarding many other plants in spring.

Grapes and their Uses.

By D. B. Wier, Lacon, Ill.

Ed. Pomologist and Gardener:—I have often been surprised that so few people know of no other use for grapes than to eat them from hand or to make them into wine. Why, they are good to *cook!* Yes, strange as it may appear, they are most excellent stewed for sauce, make a very rich tart or pie, the nicest of jellies, no fruit better canned. Can be dried with less trouble than most any other fruit. But the seeds, the great rough seeds, what do you do with them? We rough country folks care nothing for the seeds, we eat "'em." But if *you* do not wish to eat them, all you have to do is to procure a brass wire seive (they are on sale made expressly for the purpose,) with the meshes between the wires just coarse enough so that the seed will not pass through, squeeze the pulp and seeds from the skins, throw the skins into one vessel, and then rub the pulp through the seive into another; but when well cooked, if stirred a little, the seeds will mostly settle to the bottom, and be out of the way. The Concord is much better for cooking when half ripe, or when red, not black. Ives' seedling is the best for cooking purposes we have yet tried. To dry them, cut the canes with the fruit and all the leaves on them, and hang them in the sunshine. They will dry in a few days, and can then be packed away for winter use, when they will be found better when properly cooked than most any other dried fruit.

And the best thing about the whole grape business is, that the coarser, easiest grown and most unpalatable of our grapes are the *best* for cooking purposes. And I have no doubt but that there are now and will be produced a line of grapes too pulpy and austere to be eaten raw at all, that will be very fine for cooking, like some pears. I have now a large, beautiful and productive white grape that will keep fresh and sound through the winter, and though entirely unfit to eat, I have no doubt but that it will prove "splendid" when stewed. The finer grapes, like the Delaware, &c., are not near so nice or so good for this purpose as the coarser sorts. The Clinton is "awful nice if freed from skin and seeds and eaten with sugar as a sauce for dessert, "*you bet.*" So let us utilize the easiest of all fruits grown in all ways.

Pleasures of Gardening.

A writer in the *Gardener's Magazine* remarks: "The pleasures arising from the culture of flowers are harmless and pure; a streak, a tint, a shade, becomes a triumph, which, though obtained by chance, is secured alone by morning care, by evening caution, and the vigilance of days. It is an employment which in its various grades excludes neither the opulent nor the indigent; teems with boundless variety, and affords an unceasing incitement to emulation, without contention or ill will. There is no pursuit alike calculated for peer or peasant, in which the distinctions are so trivial; for the cottager may possess and enjoy the same beauteous rose or fragrant mignonette in his plot or window, that occupies a place in the garden of the richest. The clear light of heaven, the sweet, fresh air, the verdure of the field, a delicacy of form and richness of color with which bounteous nature supplies us on every side, in the almost inexhaustible variety of her horticultural and floral treasures, are all sources of the most unalloyed pleasures; and it is a wise dispensation of the Giver of all good, that this gratification of the senses of sight and smell whilst beholding the elegant shape of plants and inhaling the exquisite perfume of their flowers, is an enjoyment within the reach of all who choose to seek it. There are few surer tests of a happy home within, than the flower-decorated window and neat-kept garden; and there is no occupation for the leisure hour more calculated to keep it so, or to soothe the mind. It yields pleasure without surfeit; the more we advance, the more eager we become. And how unlike this is to most of our worldly engagements."

How to Destroy Insects in General.

I have used the following mixture for some years ccess in the destruction of such pests as mildew, scale, mealy-bug, red-spider, and thrip; in fact it is my only remedy in the case of trees, shrubs, and stove and green-house plants, but much care is required in its use as regards strength, and thorough syringing afterwards: 2 oz. Flower of Sulphur worked into a paste with a little water, 2 oz. Washing Soda, ½ oz. common shag tobacco, and a piece of quicklime about the size of a duck's egg; put them all into a saucepan with one gallon of Water' boil, and stir for a quarter of an hour, and let the whole settle udlil it becomes cold and clear. It should then be poured off, leaving the sediment. It will keep good for a long time. In using it add water, according to the strength or substance of the foliage.

Entomology.

Dr. S. H. Kridelbaugh, Editor, Clarinda, Iowa.

☞ Send in the Insects.—Dr. K. is chairman of the Committee on Entomology for the State Horticultural Society, and would take it as a favor to be furnished with specimens of insects from the various localities of the State, by mail during this year. Those sending will please state all they know concerning the habits of the insects sent; what they are found feeding on, etc.

Chinch Bug.—Micropus Leucopterus, Say.

Of the many insects which feed on cereals, the farmer is not troubled with one more disastrous than the chinch bug, (*micropus leucopterus, Say,*) not even excepting the notorious Colorado potato beetle, (*doryphora 10-lineata.*)

During the winter the *micropus leucopterus* hibernates in the rubbish along the fence rows, in the corn stalks in the field, and such other clumps of litter as it may find convenient shelter in, when winter overtakes it. Its color is black and white, as represented, greatly magnified in the annexed figure at fig. 2—*a*. A representation of the insect of natural size may be seen at fig. 1—*b*.

FIG. 1.—*b*.

FIG. 2—*a*.

It belongs to the sub-order of half-winged bugs, (*Heteroptera*) and the family *Lygæidæ*, and is perfumed with the same disagreeable smell, so readily recognized by every one who has ever had to help the good house wife to clean bedsteads of this loathsome human trouble—bed bugs, which also belongs to the same order.

In early spring it comes out from its winter quarters, and commences laying its eggs under ground, on the roots of the varied kinds of plants, always preferring such as are most genial to its taste. These eggs are very minute, to the naked eye appear as tiny pale amber, white colored dots, but as they grow older they assume a reddish color—the larvæ showing through the transparent shell. Dr. Shimer says that the female occupies about three weeks in laying her eggs, of which she deposits about five hundred. That the egg requires about fourteen days to hatch, and the bug becomes full grown and gets wings in from forty to fifty days after its hatching. Thus it will be seen that this insect passes through its three stages in from fifty-four to sixty-four days, and it is ready to couple and produce another generation. At this rate of re-production, if but few pass the winter, it does not require a very long period of time to pass until their numbers are legions.

Prof. C. V. Riley says in the first volume of the Practical Entomologist, that they are two brooded in Northern Illinois. If this is true, it is but fair to presume that such is the fact in Iowa; and we have no doubt of this truth when we take into account the enormous ratio in which it increases during each dry season which is favorable to its breeding. It is a notorious fact, which every intelligent and observing farmer can bear witness to, that the chinch bug flourishes in the dryest spots of the field, and never is troublesome in low and wet places. That it is most disastrous of dry hot seasons and is never very rife in wet seasons.

This small, narrow fellow sticks its tiny beak into the green succulent vegetation of different kinds and sucks the sap therefrom; and in such myriads do they invade the wheat fields, that in particular spots every stalk is covered and crowded by them, and is pumped dry of its juices, causing the infested portion of a field to become of a white color, and the grain to be shrunken and abortive. After the season is passed so far along, and the wheat is harvested, they take to the corn. So great are their ravages that all farmers dread them, and well they may.

The chinch bug never has been known to do a great deal of injury in New York and the New England States, although it has been observed in those States in limited numbers. But in the South where it is a native, and in the Middle and North-western States its disastrous work has some years cost many millions of dollars, while in other years it has appeared to not do much harm. Yet it is to be doubted that a year does not pass that, if close observation could be had, it would be found that it annually destroys thousands of dollars worth of the growing crop.

Remedies.—Natural remedies have been provided to partially prevent the increase of this terrible pest. Here it is again we witness the value of the spotted Ladybird, (*Hippodamia Maculata,*) the trim Ladybird, (*Coccinnella Munda,*) and to still smaller insects belonging to the genus (*Scymnus*) of Ladybirds. Added to these are the labors of the larvæ of the Lacewing Flies, (*Chrysopæ*) all of which prey upon the chintz bug.

Although it may not be regarded as good farming to cut, rake and burn corn stalks and the stubble from harvest fields, on account of the waste of manuring material, yet it is advisable to burn up all such material, at a favorable time for such work, on

fields known to be infested, and to rake out of the fence rows all rubbish and submit it also to the fire. By this kind of management the numbers of the chinch bug will be greatly reduced, so much so that their ravages will be materially lessened. Clean farming appears in all cases, to be a pre-requisite to success, and so far as insects are concerned, it holds good, as well as for the growth and developement of grains, fruits and roots.

On account of the disagreeable odor possessed by the chinch bug, birds as a general rule, do not prey upon them very ravenously, if we except the Partridge—the common Quail. This bird almost lives on them when it can get them. And for this reason they are now protected by law, which law should never go out of force, but be made more stringent than it now is.

Spined Soldier-Bug.—*Arma Spinosa Dallas.*

Ed. Pomologist and Gardener:—Not being an entomologist, I send you some bugs, beetles, or "varmints" for a name—and they are worthy of a first class name, for they are *death* to the potato bugs—commencing as soon as they deposit their eggs, and follow them until they disappear in the fall.

I hope you will give a description of them in your Pomologist, with illustrations, that people may know and protect them and not destroy them with the potato bug. I have watched them for the last two years—they will hold a full grown potato bug in their bill or proboscis and eat him up in a very short time.

They are increasing very fast. I find a dozen this year where I found one last year. I hope they will be a great help to the farmer and gardener in destroying those pests.

S. D. Redfield.

Vinton, Benton Co., Iowa.

Remarks.—The bugs you send are fine specimens of one of our best insect friends—the Spined Soldier-Bug, known to science as the *Arma Spinosa*, of Dallas. He is a true bug, half winged—*Heteroptera*, and belongs to an extensive group—the *Scutellera* family, and may easily, without the use of a microscope, be easily distinguished from all others on account of the large size of the scutel, which is triangular, and covers nearly half of his back. This genera of bugs furnishes a larger number of plant feeders than cannibal feeders; there is however, in it a sub-group—*Spissirostres*, to which our cannibal friend belongs, the greatest distinguishing feature between which is that the cannibal, or bug eat bug sub-group have robust beaks, while the plant-eaters have beaks more delicate.

Fig. 1.

The most general color of this insect is dull-olive with yellow markings, although we have seen specimens of an ash-gray, and of green color, almost entirely free from any yellow markings. The wing covers or anterior wings of the *A. Spinosa* are spinous, hard, and small for a bug of its size, with about one-third on the tip and iridescent, the remaining portion presenting a beautiful opaque olive, horny or shell like appearance. The posterior wings when seen, by removing the anterior ones, are also iridescent, and look like the finest of tissue paper, of an ash-gray color, so fine that they as well as the tips of the anterior wings are transparent.

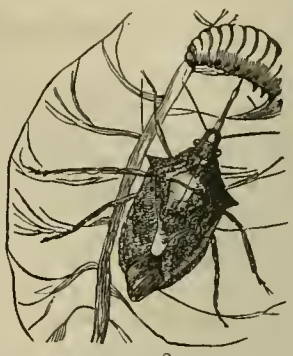


Fig. 2.

As early as the year 1864 we noticed the subject of these remarks preying on the Colorado potato beetle—*Doryphora 10-lineata*, and it has to our certain knowledge been on the increase ever since. It however, does not prey on the *D. 10-lineata* alone, but has been known to attack the Wild Bee—*Andrena*; the native American Gooseberry Saw-fly—*Pristiphora Grossulariæ;* the Locus—*Cicada*, and when the Colorado gentlemen have become scarce in the potato field, it attacks the Lady-Bird—*Coccinella 9-notata.*

For the benefit of our horticultural and farmer readers we present engravings that will enable them to readily recognize and protect this most useful enemy of the potato bug.

Fig. 1. The bug natural size.

Fig. 2. The bug magnified and in the act of stabbing the larvæ of a potato bug.

In our remarks we have said this insect has a more robust beak than the plant-feeders belonging to the same genera; this beak it turns back under it when at rest, but has the power of thrusting it forward when it desires to make war upon other members of the insect world, inserting it into its prey, and extracts from them their life's blood, and leaves the hard parts to dry. The beak is composed of four sections, or joints, the first joint commencing at the head, is longer than any of the other three; but in the plant feeder, most liable to be confounded with the *A. Spinosa*—the large Brown Squash-Bug—*Coreus Tristis*, the second joint of the beak is much longer than any of the other three joints of its beak.

Notes and Gleanings.

Grapes and Graperies. In the October No. we shall commence a series of articles with illustrations, on the construction of graperies and the culture of grapes therein, by J. S. Parker, M. D., Ithica, N. Y. The subject will be treated in a manner that will enable any one to go about the business understandingly—full specifications being given for the erection and management of such structures. Dr. Parker's articles on graperies and the grape have met esseem both in this country and Europe.

Missouri Valley Grape-Grower's Association. The annual meeting of this Association will be held at St. Joseph, Mo., the 6th and 7th of September, in connection with the fair of the St. Joseph Horticultural Society. One and all interested in the grape are invited to be present with fruit and wine for exhibition. Grape-growers of the Missouri Valley who cannot be present are invited to send fruit and wine, and to furnish the Secretary, Daniel L. Hall, Kansas City, Mo., all the information they can relative to grape culture, in their respective localities.

Horticultural Notes From Missouri.

Ed. Pomologist and Gardener:—As I promised to give you an account of the fruits of this region the present season, it is about time to begin.

The strawberry crop was a good one for so dry as the weather was. Among the new ones, Nicanor, Southern Mammoth, both early, done very well, and are worthy of trial. Wilder, Boyden's No. 30 are fine indeed. Charles Downing was not satisfactory. Napolean promises to be one of the most valuable late berries I ever grew. A seedling of mine, Maud Miller, shows more than ordinary qualities; vigorous plant, very productive, fine in flesh, and excellent in quality. I picked from the original plant twenty-seven berries, averaging nearly an inch in diameter, at one picking. Of this I will send you plants for trial as soon as the ground gets wet again. I have distributed a few plants, and will more, to have it tested; and if it proves valuable in different parts, it may be advertised.

Of raspberries, it is the old story—a big crop of fine berries. Seneca, Surprise and Mammoth Cluster the best of the Black Caps; Purple and Philadelphia, Kirtland, and Clark, best of the Reds; the latter by far the finest. The white varieties, I have but two, Early White Cap good, and Orange King, a hardy variety; few Cr Arnold, of Canada. It is equal to the Brinkle's Orange in quality, but not as large.

Blackberries were a splendid crop. Missouri Mammoth large and good, but too few; will destroy all mine. Kittatinny superb. Crystal, a fine crop of the most beautiful berries, some an inch and a quarter long, clear as crystal, almost, and sweet as honey. This is a contradiction by some, who call it a white blackberry. Crystal is the proper name.

About apples there is no use to write. The crop here is an overwhelming one, all fine; but our trees are affected by twig blight every year, yet I do not see that it seems to injure the trees; but it certainly gives them a very unsightly appearance.

Peaches, an immense crop of natural ones. Of budded fruit, a fair crop on the hills, while on the low lands there is a very sparse sprinkling of them. But oh, what peaches they are! A basket beside me with ten inches in it look well.

Pears, a fine crop wherever there are bearing trees. Of grapes it would be difficult to give an account. Here it is all that could be asked, and so I learn from all around, except at Herman, the vineyards do not look so well, so a grape friend told me lately.

In my next number I will give you some account of varieties and their doings.

Samuel Miller.

Bluffton, Mo.

Notes From Benton County.

Ed. Pomologist and Gardener:—About fruits I have to say, my Ionas, Concords and Clintons are doing well. I have Concord vines planted two years ago last spring, that now hold nearly two hundred bunches to the vine.—No mildew or rot yet. My Israellas (which I think as good as Black Hamburgs,) Eumelan, Ives and Delawares were all killed last winter.

The apple tree blight is worse than ever. Tallman Sweet was first affected. I think sweet apple trees suffer more from blight than sour. I think your Adel correspondent is mistaken in regard to the cause of blight, for all my crab trees were affected except Soulard. I have some Summer Queens grafted two years ago into Siberian stocks, and now all are dead below the graft. There is a mystery about this blight. Is it caused by some "varmint?"

Last spring I tried your mode of grafting the grape, as recommended in the *Pomologist*. It worked like a charm. I worked Ionas into some wild stocks, and in four weeks some of them made a growth of nearly *eight feet*. I then pinched the tips of the vines. S. D. Redfield.

Vinton, Iowa, Aug. 12, 1871.

Fruit Notes from Minnesota.

The Farmers' *Union* makes mention of the first load of Minnesota grown apples ever offered for sale in the Minneapolis market, and we are pleased to see that our highly esteemed and intelligent correspondent, PETER M. GIDEON, of Excelsior, Hennepin county, was *the* man who raised "them are" apples. This is an event in the history of Hennepin county that should be written in letters of gold.

The *Union* in commenting upon the event, says: "In itself this may not be considered a very great matter, particularly by those residing in other States; but we consider that it is fraught with great moment to the future destinies of the pomological world of this section of Minnesota. In short, we consider it one of the most important items that we have given to the public for a long time. It is a beginning, in spite of wind and weather. It is a beginning in a great and important branch of home industry which we have hoped for since 1849."

The *Union* further says: "We have the most perfect and beautiful specimens of apples in our office, gathered by Wyman Elliott in various parts of this county. They are destined to the American Pomological Society, to be held at Richmond, Virginia, the seventh of September."

From other sections of Minnesota we have flattering reports of success. The Wabashaw *Herald* reports a load of apples brought into that market from an orchard near by.

FRUIT IN NEW ENGLAND.—W. H. W., Ct., writes us concerning the fruit crop of the N. E. States, August tenth: "There was a considerable blowth on our apple trees in the Spring, but the drouth, cold, etc., blasted the prospect of our crop so that there will be very few apples in Connecticut; and so far as I can inform myself, the same is general throughout the New England States. Only a very few pears will be had, from similar causes. Grapes are abundant, the vines being loaded generally, with a good prospect of their ripening up in season. Vines and fruit healthy. Strawberries were somewhat less than usual, but a fair crop. The drouth in the early part of the season, extending into June, added to that of last year, is scarcely paralleled throughout New England, so that the hay crop is very much below the average; yet most other crops will come in full an average, and some above. The rains of late June and through July have greatly changed the prospects earlier in the season.

THE NEVADA FRUIT CROP. The Grass Valley *Union* thinks that there is fruit enough in that township to supply half the State of California, and wonders what is going to be done with it all. The home market amounts to but little, and transportation is so high that foreign markets can be reached.

WHEN TO SOW CLOVER. This question was asked us a few days ago by the owner of an orchard we were visiting. We could not advise as to summer or fall seeding. But a correspondent of the *Western Farmer* writes as though he knew something about it. For some sixteen years he has sown in summer, fall, spring, and on the snow in winter, and has occasionally failed in all seasons, except when sown in August. His mode is to sow in the month of August, and put no crop with the seed, except it is for protection—when sown after raising a crop of oats, enough will come up from the stubble for protection. Corn is a sure crop for clover to catch with, if sown between the rows; even then I should sow oats with the seed.

ELDORADO FRUIT. The Placerville *Republican* says large quantities of fruit are being transported to Nevada by the Placerville route, conveyed in four or six-horse Concord thorough-brace wagons. About nine days are required to make the trip. The farmer or fruit raiser disposes of his load on the road or at Virginia City, at from four to ten cents per pound, generally having a variety, such as apples, pears, peaches, plums and grapes. Each load, after paying expenses, leaves him quite a margin for profit. On this route upwards of forty teams were engaged three months last year in transporting fruit raised in this vicinity. In all, more than 750 tons were delivered, for which about $120 per ton were realized.

THE TOMATO PERENNIAL. The Ventura *Signal* says that the tomato in Southern California is a perennial plant, which blooms and bears fruit during the entire year, when properly cared for near the seashore, where there are no frosts, the editor has seen them of five years' growth, looking as fresh and vigorous as at any time of their existence. He adds: "There are many classes of the vegetable kind perennial here that are elsewhere annual. Among others we have observed the 'deadly nightshade,' which becomes quite a shrub, and of such luxuriant growth in many places as to form beautiful and secure hedges."

IT CAN'T "BE DID." The *Gardener's Monthly* in anticipation of a visit from the Colorado Potato Bug, recommends crushing them by rolling. Now, Mr. *Gardener*, you might just as well undertake to crush a flea in that way. The best known exterminator of this bug is Paris green and air slacked lime. An application of these ingredients cleaned out the buggiest acre of potatoes for us last season (we venture to say) ever seen. Their extermination appeared so complete after the application, that we had potatoes planted upon the same ground this season, and nary bug has shown himself yet—August 20th.

The Santa Rosa (Cal.,) *Democrat* says of the fruit in Marion county: In some localities the White Winter Pearmain was a total failure last year, and will probably be again this year. The yield is large, but they are only good for feed for hogs. Red Junes are badly infected in Green Valley, and in some other orchards. Both this and last year the Yellow Newton, Yellow Bellflower and Hall have been infected to a greater or less extent. The fruit alone of the above varieties has been impaired, but in the extensive orchard of Mr. Tilton the leaf of some young Beauty of Kent trees shows mildew.

A Good Show. The Rochester (Min.) *Post* says of a Duchess of Oldenburg apple tree in that place. "It is a small tree, not more than six feet high, with a good top, has been set out three years, is only about six years old, and is bearing, this season, fifty-four beautiful apples, all of them of good size, though still growing, and the largest measuring 10 inches in circumference. It is a sight well worth seeing. The tree has had no extra care or protection.

Bitter Rot in Apples.—A correspondent of the Northwestern Farmer thinks bitter rot is an infection disease carried to the fruit through the flow of sap, and as a remedy recommends peeling off the bark when the sap is running freely, taking care not to scar the wood. In the month of May he peeled the bark from eight old trees. In one season the bark was nicely renewed and the fruit improved.

A Prolific Cherry. The Pacific Rural Press acknowledges the receipt of a cherry tree stem seven-eighths of an inch in diameter and five feet in length, bearing 354 cherries. It was cut from a tree of the Royal Ann variety, growing on the Willamette river, Oregon, and weighed seven pounds. This "wonderful production" looks as if Oregon might be taking some of the wind out of California on fruits.

Flowers at a High Altitude. The *Miner*, Montana, says:—At an altitude bordering upon 8,000 feet, Monitor can show collections of as fine plants growing in the open air as will be found in almost any place. Among the fine flowers, we may mention the Tuberose, Gladiola in great variety, Verbenas, Geraniums, Chrysanthemums, Balsams, Zinnias, Japan Lilies, and others too numerous to mention.

☞Stimulating Pot Plants. It is said that an ounce of pulverized carbonate of ammonia, dissolved in one gallon of water will make spring water even more stimulating to plants than rain water.

Dwarf Pears. The Germantown Telegraph says: "Dwarf pears are at this day all that we ever claimed for them, and we should not think of possessing a garden without them, Where room is scarce we should grow dwarfs exclusively, and even where room is unlimited we should have some dwarfs."

We now have about two hundred dwarf and standard pear trees coming into bearing. An experience of six years with both classes—standard and dwarf—enables us to fully endorse what the Telegraph says in favor of dwarfs.

Drouth in Ohio. Mr. J. C. Neff, Duncan's Falls, Ohio, writes us Aug. 22,—"We are experiencing the severest drouth that has occurred in this part of Ohio for thirty years. Grapes, peaches and apples are suffering for the want of rain. Peaches are a one-third crop, and half the usual size; are selling at 80 cents to $1.50 per bushel; grapes $2.50 per bushel, and plums $2.00 to $2.50."

Immense Crop of Peaches. We see it stated that six trains of cars from the peach orchards of Delaware, arrived in New York in one day this season. Each train had thirty cars, and each car 500 baskets of peaches. If such is but one day's work in the peach trade of Delaware, what in the name of wonders is the peach business of that little State for the whole season!

Good Advice. The English Journal of Horticulture gives some excellent advice in pear culture when it says, that with regard to pruning very young pear trees, the object should be to encourage the growth of wood in proper directions, rather than the production of a few fruits at the expense of retarding the development of the tree.

A Big Hemlock. The *Farmer and Mirror*, published at Manchester, N. H., says a hemlock tree was cut down in a wood lot belonging to Mr. Sturoc, of Sunapee, a few days ago, the stump of which measured twenty feet in circumference, and the length of the body of the tree before reaching the limbs was fifty feet.

Grapes in Texas. The Liberty (Texas) Observer says that in Liberty county alone, there are now ripe upon the vines, grapes enough to make wine for the State of Texas.

☞ The Fruit and Wine *Reporter* for August gives a very flattering account of the condition of the grape crop from all over the country.

A New Raspberry. Ontario Black Cap appears to be a new candidate for pomological favor. It is represented to be as "vigorous and productive as any of the Black Cap family." But what of its fruit?

200,000

TRANSPLANTED EVERGREENS,

For Sale.

Two and three years from Forest. Consisting of White Pine, Balsam Fir, American Spruce, Arborvitæ Hemlock. Also Scotch and Austriau Pine, Norway Spruce, &c., from Seed.

EARLY RICHMOND

Cherry Trees for Sale in Large Quantities, and Cheap, on the

Black Morrello Stock.

FOREST EVERGREENS!

Furnished in their Season. Spring of 1872. Handled by men of experience and warranted to give satisfaction.

Send for Circular.

S. L. KEITH,
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NURSERYMEN AND FRUIT GROWERS, ATTENTION!

Concord, Ives' Seedling, Hartford Prolific, Perkins, Delaware, Rogers' Hybrids,

And other popular varieties of **GRAPE VINES,** 1, 2 and 3 Years Old, for sale singly, or by the thousand.

30,000 CURRANT BUSHES,

Mostly of the following kinds: White Grape, Versailles, Cherry, Imperial White, Victoria, Prince Albert, and White Provence.

RASPBERRIES, BLACKBERRIES, GOOSEBERRIES AND STRAWBERRIES!

The most reliable and popular varieties. THOUSANDS!

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Grape Cuttings by the 100, or 100,000 at Lowest Rates!

Currant Cuttings per 1000, *or* 100,000 *at much less than usual rates.*

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REA'S Mammoth Quince Cuttings, per 100 or 1000. Cuttings of the newer varieties of Weigelia, Deutzia, Japan Quince, and Syringa. 100,000 Pear Cions from young bearing trees. Send for wholesale and retail price list to

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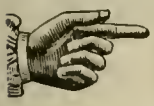

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We offer a VERY LARGE stock of the above AT LOW RATES; also a complete assortment of

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The following CATALOGUES will be sent on application, viz—

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GRAPE VINES AND SMALL FRUIT.

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A Fine Lot of 2, 3 and 4 year old Apple Trees. Apple Scions of the Best Varieties.

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Tree Seedlings, Hardy Shrubs,

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— AT THE —

Evergreen Hill Nursery,

SABULA, IOWA.

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I offer for sale this Fall

Several Hundred Thousand Apple Stocks!!

Very fine, at lowest market rates. Also, apple grafts for setting. Spring of 1872.

Orders solicited. Correspondence promptly attended to.

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150,000 | APPLE TREES. | 150,000

FROM one to four years old, of leading varieties, well grown thrifty, largely Grimes' Golden. Also, Apple seedlings, all at very low prices.

PRICE LIST SENT FREE.

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Aug. 14. 1871.—9-2m

☞NURSERYMEN want it. FARMERS want it. Every TREE PLANTER wants it.

Forest Trees,

FOR

Shelter, Ornament & Profit.

By ARTHUR BRYANT, Sr.,

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This new work, especially written to meet the Forest Tree necessities of our Country, *is now ready.* **Finely Illustrated, with 12 full page engravings.** Price $1.50. Sent by Mail on receipt of Price. Send for Price List of Forest Trees, Seeds, Evergreens, &c. ADDRESS—

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Nursery Stock.---Special Items.

PLUMB'S CIDER, and other *Iron Clad* Apple Trees, one to three years, and Cions. Siberians, 20 improved varieties fall and winter.

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20 M. Eu. Mt. Ash, 6 to 12 inches.

100 M. Ash Leaved Maple, 6 to 12 Inches.

100 M. Apple Stocks; Apple Seed. Root Grafts.

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STAR NURSERIES!!

QUINCY, ILLINOIS,

Have an immense stock of

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EVERGREENS, VINES, SMALL FRUITS, ROSES, SHRUBS, &c., &c.,

WHOLESALE & RETAIL.

Send for our Descriptive Catalogue and Price Lists.

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APPLE TREES—mostly 2 and 3 years, fine	600,000
PEACH TREES—best leading kinds	30,000
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EVERGREENS—2 inches to 6 feet	3,000,000
ASPARAGUS ROOTS	150,000
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And a large quantity of Pear and Plum Trees, Gooseberry, Currant, Raspberry, Blackberry and Strawberry Plants; Evergreens, all sizes; Roses and other Ornamental Stock.

Our Nurseries are located on the high bluffs of the Mississippi River, in the City of Quincy, Ill. Soil unsurpassed. Shipping facilities by rail or river in all directions. Parties wishing to purchase largely will do well to consult our wholesale catalogue, and examine our stock before purchasing elsewhere. Address,

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GRAPE VINES! AND WOOD!

Eumelan, Martha, Walter, Iona, Concord, Clinton, Creviling, Rogers' Hyhrid, Ives, Hartford, Delaware, &c., &c. Also cuttings of the above varieties, Large Stock; quality unexcelled. *True to name, and cheap.* By mail, if desired. Special inducements to agents and the trade.

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JANESVILLE GRAPE!

Ripens August 15th.

Stands Wisconsin Winters

WITHOUT PROTECTION.

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Wild Goose AND Miner Plum Trees

Warranted true to name, and to be varieties of the Plum that will grow and bear an abundance of beautiful and delicious fruit anywhere in the United States, *being curculio proof.*

200,000 APPLE TREES.

Two to Four Years. BEST WESTERN VARIETIES.

200,000 Siberian Crab & Hardy Russian Apples.

GRAPE VINES, SMALL FRUITS,

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EVERGREENS & HEDGE PLANTS,

By the Thousand or Million.

European Larch,

ALL SIZES. By the **100** or **100,000.**

A full Nursery Stock of every kind, true to name, and perfect in quality. We wish to deal directly with the *farmer* and *planter.* Send for Price List, and see HOW LOW GOOD Stock can and will he sold.

Lacon Nursery Co.

D. B. WEIR, Manager,

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PRINCETON, ILLINOIS.

Offer a large and complete assortment of Nursery stock, including

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Of the best varieties. A fine stock of small fruits,

CONCORD GRAPES, 2 AND 3 YRS. EXTRA.

We devote a large space to

FOREST TREES,

And have a fine stock of one year seedliugs and one year transplanted **MAPLE, ELM, BOX ELDER, ASH, CATALPA, EUROPEAN AND AMERICAN LARCH,** which, for quality, size, and cheapness, we think cauuot be surpassed.

ORNAMENTAL TREES,

Apple Stocks, Persimmon Seedlings.

TREE SEEDS, &c.

EVERGREENS

In any quantity, and of almost any desired size or variety.

Send for Catalogue & Price List.

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FOREST TREES, for Shelter, Ornament and Profit. A new work by Arthur Bryant, Sen., President Illinois State Horticultural Society. Price, $1.50. Sent free on receipt of price. 9-2m

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I invite the attention of Planters and Dealers to my complete Stock of

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FOR AUTUMN OF 1871.

The following sorts I have in large stock, and offer at Low RATES.

Dwarf Apples, Dwarf Pears,

CONCORD,

Catawba, Isabella,

AND

IVES' SEEDLING GRAPE VINES,

Three to Four years old, very fine plants. European Mt. Ash, 4 to 8 feet.

Price List August 1st, mailed free to all applicants. Descriptive and Illustrated Catalogue sent on receipt of 10 cts.

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LEES SUMMIT NURSERIES!

OVER

160 ACRES ACTUALLY PLANTED

In a general assortment of

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In

Superior Quality and Growth

Our Nursery is

UNEXCELLED

By any in the West,

Thereby commending itself to the *Wholesale Trade,* and to which the attention of

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Is respectfully called.

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Queen Bees!!

Thorough-bred and handsome,

Sent by Mail or Express

To all parts of the country.

Safe Arrival Guaranteed.

Prices---

From $5 to $20,

According to good qualities.

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Have for the Fall Trade of 1871, a large stock of Standard and Dwarf Fruit Trees, Grape Vines, Small Fruits, &c., &c. Address, SEARS, HENRY & CO.,

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N. B.—We have a large and fine lot of DWARF PEARS. Special inducements offered to dealers and large buyers to trade with us. S., H. & Co.

8-m2

EVERGREENS!!

EXTRA INDUCEMENTS

Offered to those wanting Evergreens, from **Forest** or one and two years transplanted, consisting of American White and Black Spruce, Balsam Fir, White and Red Pine, Hemlock, Larch, Birch, Sugar Maple, &c., &c., and

AS LOW AS THE LOWEST.

Full instructions sent with all orders for treatment when requested.

20,000 (two Years from forest) White Pines.

For full particulars send for Price List. Address

S. L. KEITH,

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No. 2-tf.

New Seedling Verbena!

WHITE UNIQUE.

Large Form and Truss, Long Stem, Good Bedder, Profuse Bloomer, and **Very Fragrant.** Sent by Mail, 35 Cents. Sent with other Verbenas at 30 cents per plant.

Testimonial from Thomas Archer, St. Joseph.

Lake Shore Nursery, April 25, 1870.

Messrs. HUBBARD & DAVIS.

Gents:—The 200 Verbenas came in good order, and are certainly the most *healthy, stocky* plants I ever saw. Address HUBBARD & DAVIS,

No. 1, tf Detroit, Michigan.

EVERGREENS
AND
European Larch Seedlings.

Twelve Million European Larch Seedlings.

Eight Million Evergreen Seedlings.

Three Million Small Transplanted Evergreens.

☞ **200,000 Transplanted Larches.**

☞ **200,000 Seedling and Transplanted Mountain Ash.**

The above are all grown from seed on our own grounds, and are better and cheaper than Imported Stock.

ROBERT DOUGLAS & SONS,
No. 8—8 Mo. **Waukegan, Ill.**

☞ 200,000 ☜
APPLE SEEDLINGS!

For sale this fall, at the lowest market price. My seedlings are not raised from sowing the seed broadcast, as practiced by some growers about here. They are raised in drills, far enough apart to admit of cultivation with horse and cultivator.

APPLE SCIONS.

Apple tree scions for sale in any quantity and variety, embracing all the most popular sorts—such as Ben Davis, Grimes' Golden, Tetofski, etc., which I warrant true to name.

APPLE ROOT GRAFTS

For the spring of 1872, put up in quantities to suit purchasers, in orders of from 100 to 100,000. Contracts made early in the fall before the time of digging seedlings will be made at low figures. It should be borne in mind that root grafting is done in the winter, usually commencing in December—hence orders should be given in the fall, that due preparation may be made in the line of stock. I raise my own stock, both seedlings and scions, which are put up and kept in first rate condition.

Des Moines, Iowa, Aug., 1871. MARK MILLER.
Mound Hill Fruit Farm, two and a half miles north of the city Post Office, on the Potk City road.

IRON CLAD
Apple and Plum!

The Celebrated Haas!

Five to seven feet, per 1000, $200. Per 100, $25.

MINER PLUM,

On its own Roots, per 1000, 5 to 7 feet, $200. Per 100, 5 to 7 feet, $25.

The above apple has given better satisfaction in this part of Wisconsin than any other apple.
The Miner is the best plum in Wisconsin.

CHARLES WATERS,
Springville, Vernon Co., Wis.

July, 1871.
No. 8—tf.

Washington St. Nurseries!

GENEVA, N. Y.

GRAVES, SELOVER, WILLARD & CO.

OFFER

Dwarf & Standard Pears,
Plums and Cherries,

Very cheap for FALL 1871.

IF you wish to buy at a little lower rates than elsewhere, for the TRADE or for ORCHARD PLANTING, send for our WHOLESALE PRICE LIST.

If you wish to know PRICES of any kind of FRUIT or ORNAMENTAL Trees, WRITE at once, and we will answer your questions promptly.

250 ACRES!

Four Catalogues! 158 Pages!

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A fine stock of Fruit and Ornamental Trees, Shrubs and Plants at Wholesale and Retail, consisting of

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Silver Leaf Maples!

From one to five years old, in large quantities.

MOUNTAIN ASH, AMERICAN ASH, AMERICAN CHESTNUT, ASH LEAFED MAPLE, ELM & LINDEN.

Evergreens!

In variety, by the 1000 or 100,000, from one year seedlings upwards.

ROSES!

A full assortment in all the various classes, all grown on their own roots.

GREEN HOUSE PLANTS in any quantity. Catalogues furnished on application.

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PRESIDENT OF THE AMERICAN POMOLOGICAL SOCIETY.

The Pandologist

THE POMOLOGIST

POMOLOGY, GARDENING, FORESTRY, HORTICULTURE, RURAL ARCHITECTURE, BEES.

VOL. II. Des Moines, Iowa; Leavenworth, Kan., Oct., 1871. No. 10

MARK MILLER,
Editor and Publisher, - - *Des Moines, Iowa.*

DR. J. STAYMAN,
Associate Editor, - - *Leavenworth, Kansas.*

DR. WM. M. HOWSLEY,
Corresponding Editor, - - *Leavenworth, Kansas.*

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For a longer continuance than three months, a reasonable reduction will be made on the above rates.

Fifty per cent. will be added to the above rates when set double measure.

☞ It should be observed by advertisers that our columns are much wider than those of news and agricultural papers generally.

Hon. Marshall P. Wilder.

President of the American Pomological Society

The subject of our sketch was born September 22, 1798, in the town of Rindge. N. H. At the age of four years he entered the common school, and when twelve years of age entered the academy at New Ipswich, where he spent one year, which with three years subsequent study with the village parson appears to have completed his scholastic education. At the age of sixteen years his father gave him the choice of three pursuits—to enter college and there fit himself for the study and pursuit of some one of the professions, of becoming a merchant, or of working on the farm. "He chose the latter, and followed it long enough to gain that firm health and constitution which is, no doubt, the secret of the mental and physical energy which has since characterized his long and useful life." After a time, however, his father's business had so increased as to require his assistance, and he returned to the store of his father, whence he had gone out to pursue the life of a farmer.

As a merchant he has been one of the successful number. At this profession he acquired a business tact in early life, to which he no doubt owes his success in after years as a merchant. But it is with his life as a cultivator of fruits and flowers that we are more directly interested, as an accompaniment to a periodical like the POMOLOGIST AND GARDENER. Through all of his earlier life Mr. Wilder showed a special fondness for their cultivation. Among flowers the Camellia seemed to absorb a great portion of his attention, having engaged in hybridizing this beautiful flower to a very considerable extent.

Among fruits, the pear seemed to lead him to greater lengths in planting and testing, than any other. While he cultivated other fruits to a considerable extent, the pear, nevertheless with him, was a *specialty*. He has introduced from abroad more trees of this fruit, has tested them upon a larger scale, and has been more successful in producing fine specimens, than perhaps any other single cultivator.

At the organization of the American Pomological Society, in 1848, Mr. Wilder was elected President—an office to which he has been unanimously re-elected biennially from that time to this. And it is owing in a very great degree to his ability—to his indomitable energy *in*, and his ardent love for horticultural pursuits, that have placed the AMERICAN POMOLOGICAL SOCIETY upon the high eminence where it now stands—a beacon light to guide the anxious pomological lover into the way to success.

We should be pleased to speak in detail of the many honorable positions of trust and honor, both civil and military, to which Mr. Wilder has been called from time to time, would the limits of a magazine article like this permit.

Mr. Wilder has now entered upon his 74th year of age—being 73 on the 22d of September last. For a man of his age Mr. Wilder still retains his physical and mental faculties to a remarkable degree—his step is still elastic and his mind unclouded. May the life which has dispensed so many blessings in such a diversity of ways, and to so many persons, be continued to bless many more. But when his sun shall set behind the horizon of life, may it go down as peacefully as it has been useful.

Hardy Trees and Hardy Blossoms.

By Wm. P. Lippincott, Vernon, Iowa.

Ed. Pomologist and Gardener:—On the night of the 20th of May 1855, there was a freeze hereabouts that killed all the apples in my orchard except those on the "Hubbardston Nonsuch" trees, which withstood the freeze of a quarter of an inch of ice on water, and matured their fruit, and in the fall were fairly loaded down with fine large red apples, there not being another apple in the orchard.

I have a theory in regard to this escape of the "Nonsuch." The tree is rather tender, and we might expect the young fruit to be tender also, but from observation I find that it is not always the hardiest trees that have the hardiest blossoms and young fruit; that is, some trees may pass through the rigors of a hard winter unscathed, but their open blossoms and young fruit cannot endure as much frost and freeze as those of some other trees that shivered with the cold all through winter.

We have a good deal yet to learn in regard to raising apples in Iowa. Three of the requisites are: hardiness in both fruit and tree; keep hogs, sheep and fowls in the orchard at least half of the year; lastly, poor ground; that is, ground that will raise good wheat but poor corn—land grubbed out from the brush near the edge of the timber, the soil of a yellow cast.

Weed's Narrow Flexible Bands.

A simple but great discovery—Weed's Narrow Flexible Bands for trapping the Codling Moth—Apple Worm.

By Dr. James Weed, Muscatine, Iowa.

Ed. Pomologist and Gardener:—Discoveries are great or *vice versa* according to their results. This, is our own bantling—of course worth *millions of dollars to the country*—and we intend he shall crow until his merits are appreciated and the money made.

These bands are to put around apple trees to catch the worms after they leave the apples and prevent them from becoming Codling Moths, to lay more eggs and cause more wormy apples. The damage to the apple crop has been so very great the last few years by the apple worm, that its parent, the Codling Moth, has elicited animated discussions at Horticultural meetings, and lengthy articles have occupied the columns of Horticultural papers.

J. W. Robson, in an address at Galena, advised putting cloth bands around the trees early in May, with twice weekly examinations through the season. Dr. Hull in a lengthy editorial in the *Prairie Farmer*, criticised Mr. Robson severely for recommending this early application of the bands with bi-weekly examinations, alledging that no worms could be found in the orchard, except in the apples, until late in July or August, and persons following this advice and finding no worms would become discouraged before it was time for the worms to be destroyed by the band system. Much the same criticism of Mr. Robson's address appeared at a later date in the *Western Rural*, in which the very great importance of the subject and the pernicious influence of Mr. Robson's counsels were aimed to be very clearly and pointedly set forth over the signature of "Carpocapsa Pomonella." The writer based all his arguments on the following alledged facts: that the second brood of worms pass the winter in the pupæ state; that no worms can be captured under the bands until August; that the moths probably do not live through the winter in the perfect state, and finally accuses Mr. Robson of writing from the parlor and not from the orchard. This article called out several replies which clearly showed that the larvæ always pass the winter in the larvæ or worm state, and we gave him the following from our record in 1870.

Our bands being put on the trees about the 15th of June the first examination commenced:

	DAYS WORK.	WORMS AND PUPÆ DESTROYED.
June 27,.....	1½	1,139
June 28,.....	½	916
June 29,.....	2	1,324
June 30,.....	3	3,368
July 1,.....	2	2,342
Total,.....		9,389.
A re-examination began,		
July 2,.....	2-10.	86
July 3,.....	3	816
July 11,.....	1	718
July 12,.....	1	620
July 13,.....	2	1,425
July 14,.....	2-10.	84
Total,.....		3,749.
A third examination early in August..		2,319.
Total,.....		15,457.

Which proves "Carpocapsa Pomonella "to be about as far wrong as Mr. Robson, in regard to the time when the first worms leave the apples and may be taken under the bands.

This season's observations have convinced us that the larvæ of the second brood of worms which live through the winter in their cocoons do not change to pupæ but remain in the worm state in this latitude—42½ degrees—until about the 1st of June. It is possible, and we think probable, that the Dr. is also mistaken in the opinion that the moths do not live through the winter; otherwise how is it that they are seen laying their eggs about the time apples are in bloom when, as we have reason to believe, no moths come out from last year's worms before the 1st of June?

Dr. Hull is State Horticulturist of Illinois, and we suppose is employed and paid by his constitu-

ents to collect and impart information to the public of importance to Horticultural interests from all sources. Why, then, did he not, at his earliest opportunity, avail himself of the columns of his organ, the *Prairie Farmer*, to save the public from the pernicious influences of his own errors as he had labored to prevent those of Mr. Robson's?

C. V. Riley in a lengthy essay which recently appeared in the *Rural New Yorker*, refers to us, in the *Western Rural* as supporting his views in regard to the uselessness of lights to catch Codling Moths, but says not one word about our narrow cloth bands. He does say:

"Cloth of one kind or another, tacked to the tree or fastened with strings, has advantages over the hay bands, as when taken from the tree it can be passed through a wringer or steeped in hot water, and the insects may thus be more expeditiously destroyed and the cloths used again. * * A good bandage, easily made, is greatly needed in the country, and if some enterprising firm would manufacture canvass strips about six inches wide, lined on one side with four inches of tow, cotton wadding, or some other loose material, and would put it upon the market at a reasonable price per yard, there would be an unlimited demand for it. Such strips would last for years, and could be cut of any desirable length, drawn around and tacked with little labor, to each tree. During my travels this summer, I shall endeavor to get some person or persons to manufacture something of the sort, and I believe it will do more than aught else to induce orchardists to guard their fruit."

Now this ideal band which Mr. Riley proposes to get manufactured and place within the reach of all, is as good a "parlor" production as we might expect; but why use a band six inches wide, while the worm is seldom more than half an inch long and would be as likely to "spin up" under the first inch of the cover as any other part of it; and why increase the expense of the article by the inner coating of tow, cotton or other loose materials, when if Mr. Riley will examine the first tree he comes to that has no band, the worms will be found under the hard scales of loose bark, and when hay bands are used they usually get between the band and the tree and excavate half cylindical cavities in the bark on one side, to prepare places exactly to their liking in which to spin their silken cocoons.

Dr. Trimbles hay bands were recommended to be put once or twice around the tree, and to be slipped up the tree when examined, when the cocoons would be found attached to the tree in the concavities excavated in the bark by the worms before spinning up. Now this was the weak point in Dr. Trimble's hay band system. If a cocoon was attached more strongly to the band than to the tree, it would slip up with the band, and if it was firmly fastened to the band and to the tree, it would be torn open and the worm or pupæ would drop out; if a worm it would again spin up, and if a pupæ it might still become a moth. If a double band was used, a few might find lodgment between the bands, but very few if any ever enter the band itself; though a "parlor" view of the subject might lead us to suppose the little rascals could much more easily cut a few straws and ensconse themselves snugly in the band than to excavate a cavity in the solid bark of the tree; but they are strongly allied to old habits and we think it will take a long time to educate them to duly appreciate Mr. Riley's cotton or tow linings as a cozy nest.

We do not believe Mr. Riley's six inch band could be taken off the tree with one half the cocoons attached to it, and this would be a large percentage of loss if no other means of destroying the worms and pupæ than the wringer or hot water are resorted to.

Did any one ever steep bands in hot water or put through a wringer anywhere but in the "parlor?" Strips of old paper flour sacks have answered apparently as well this season as cloth bands, and it is probable that a lighter manilla paper would do. White birch bark or the inner layers of the linden or bass wood would probably make good bands. Hay bands, if put on and examined in the same manner as our cloth bands will answer a better purpose than when "slipped up the tree."

Standard Pears made of Dwarfs.

At the Farmers' Club, N. Y., in answer to a question whether "Dwarf Pears can be converted into Standards by planting rather deep and hilling the earth around the stem?" Mr. A. S. Fuller remarked, that they would nearly all become standards if the junction of the pear stock upon the quince root be put four inches below the surface. It is a good practice to remove the earth and cut several gashes at the swell of the graft, then replace the soil, and new roots will come out upon all sides, and the tree is therefore less liable to be upset by heavy winds.

Mr. Quinn remarked, in answer to a question about distances, "that twelve by sixteen feet is, I find, by long experience, the best interval for pear trees. Being thus near together, they protect themselves to a certain extent. I adopt the plan of having the fruit as near the ground as it can be well induced to grow. I prune to a cone or Lombardy poplar shape, so as to get a slim, tapering tree with fruit near the stem and near the ground. The only objection to this style of pruning is, that you cannot use your pear orchard as a pasture. But that is seldom desirable. If the trees are twelve by sixteen, they will tax the ground heavily enough without requiring it to grow grass. My success has come from four practices—rich manuring, close planting, open top pruning, and mulching."

THE "HERSTINE" RASPBERRY.

Dwarf Pear Trees.—Too Much Nursing.

By W. H. Yeomans, Columbia, Conn.

Ed. Pomologist and Gardener:—Within the past few years, since the introduction of dwarf cultivation, very much has been written, many suggestions offered, and directions given, enough if well followed, to have produced failure in nearly every case. It is always desirable to have directions sufficient from those who are supposed to be proficient in the particular department which they follow, but of all kinds of business there is none that requires a greater degree of sound judgment, and proper discrimination than farming as pursued in its different departments, since there are so many conditions that enter into operations which tend to so change the general results, which might otherwise be expected.

This applies particularly to the cultivation of dwarf pears; and while failure often results, it is in consequence of the mode of operations pursued rather than impossibility of cultivation. As a general rule, other things being equal, the nearer any course pursued can be made to produce an effect similar to the general operations of nature the better will be the result produced. It is always best before entering into the cultivation of dwarf pears extensively upon any given tract of land, to experiment upon a small scale, and thus discover what mode is best adapted to such soil, and then let the whole operations be governed by the experimental results.

Reference is here made to the preparation of soil &c., rather than to subsequent general cultivation, in which certain general principles must be observed, but which it is believed are as yet pursued too regardless of the general good of the tree. It is generally recommended, after successfully setting the young tree, to follow up a *destructive* course of pruning, or dwarfing, i e, all the branches, and the top even, must be greatly reduced each year in the early spring, for the purpose of thickening up the stock so that it will the better support the fruit that it may be called upon to mature.

Now this may in cases of excessive growth be advisable, but ordinarily is believed to be destructive to the life of the tree. In the first place it is not advisable to adopt such system of cultivation as will produce such excessive growth as it must be, to require heading back. The whole evidence as furnished by nature, is, that all trees that furnish an excessive wood growth, fail to put out fruit spurs which are absolutely necessary to a productive tree. And yet high manuring and cultivation of the soil produce precisely this result, and then being successively pruned as recommended, the chances are that the tree will find a premature death. This has been observed.

Now on the contrary, if the tree has much less forcing, and is what might be termed somewhat stinted in its growth, so much so as not to require heading back, the wood growth is natural, and continues without the unnatural shock of pruning, and the result in the end is a healthy tree which will live out many more years than in the other case. Nor is this all, its capacity for bearing will be considerably increased. This is a matter of experiment; trees of the same age and condition were planted in a cultivated garden, and in a piece of land allowed to go to grass; in the first case there was a great growth and proportionate pruning, in the second case the trees were left to themselves with occasionally a light manuring, but while the first bore fruit considerably earlier than the second, they also a long time since died while the others are still in vigorous condition bearing abundantly of fruit and yet have received scarcely any care and no pruning. This then is evidence that the care and pruning of dwarf pears is carried to excess.

As in the anim al kingdom, the disobedience or obstruction of natural laws produces disease and perhaps death; for if man, who is constituted with a stomach to digest a proper amount of food for his sustenance, overloads his stomach, an obstruction of the laws of digestion is the result, and if continued, diseased organs follow; on the other hand, a similar effect is produced if the amount necessary to sustain life is withheld. Thus we learn that all efforts properly put forth in the desire to assist nature in its operations, are legitimately extended; and so, too, while very frequently it is absolutely necessary for man to change some conditions which are not desirable and which it is impossible for nature to change, the accomplishment thereof, results in a more perfect development. So it is with the pomologist, so long as he confines his efforts either in the direct channel or in assisting natural laws, success will attend them, but when he oversteps those bounds and instead of assisting throws obstacles in the pathway, nature rebels and gives evidence thereof in diseased and perhaps dead trees.—Nature is incapable of withstaning so severe a shock as is occasioned by excessive pruning, therefore it is that the pomologist should exercise great caution in his system of pruning, and carry it only to that extent necessary to the development rather than the destruction of his trees.

A California Hedge Plant.—The Santa Clara *Agriculturist* recommends the California wild cherry—*cerasus illicifolia*, as a very superior plant for ornamental hedges. It is an evergreen, with a foliage of a sprightly, delicious green, that sparkles in the sunlight. It is very dense and compact, stands pruning well, and with its crinkled leaves hides both limbs and stocks.

New Discovery in Pear Blight.

By A. S. Cummings, Galena, Ill.

Ed. Pomologist and Gardener:—In your late issue I notice an article on Pear and Apple Blight, in which reference is made to the manner in which the poison works its way downward through the bark, especially those of a gross, fleshy texture. I experimented on a diseased Bartlett this season, as follows: About the first of August blight attacked the end of the central upright shoot of a bearing tree, which I cut off some feet below the lowest appearance of disease and arrested its progress so far as I can judge, in that part of the tree, new and vigorous shoots appearing at once below the point of excision.

About the middle of August it appeared on a side limb just where the present season's growth commenced, and extended rapidly downward along the old wood, leaving the new wood fresh and vigorous. I immediately ringed the limb some feet below the disease, taking out a ring of bark ¾ of an inch wide, aud awaited developements. I examined the tree to-day, and find that the disease has spread to the point where the bark was cut out, and has affected more or less the old wood of all the branches above the point of ringing, but below that point the bark is still smooth and of a natural color, and has no appearance of disease.

I think from this experiment that the disease is wholly in the bark, or at least is communicated through it, and that ringing stops the disease as effectually as cutting off the limb.

I should like to hear the result of other experiments in that line.

Pear Blight—Trees in Grass.

By J. F. Tallant, Burlington.

Ed. State Register:—In your issue of the 28th ult. you published an article on this subject, with quotations from last winter's proceedings of the State Horticultural Society, which require some explanation, though you quote them correctly, as they entirely fail to give the pith and substance of what was said at that time.

As you correctly state, tree blight and grape rot, and, in fact, all kindred diseases, are entirely beyond the knowledge of the most careful and observing fruit growers. Nothing whatever in the shape of facts has as yet been discovered, and every man has his own theory, which the more it is enlarged on, the less light we have.

Apple tree blight has thus far given Iowa fruit growers in this vicinity very little trouble. A few varieties are subject to it and these had better not be planted at all. There is a sort of leaf and new growth scald which destroys the young twigs, and gives inexperienced planters some uneasiness, but which does no damage whatever. This prevails all over the country, and is not worth notice. As a general rule the climate of Iowa is adapted in an unusual degree to the successful growth of the apple.

Pear blight is a very different thing. It attacks trees of all ages and sizes, and its appearance is so eratic and sudden as to be inexplicable by any known rules of plaut growth or destruction. I did say, in the Horticultural meeting, that I cared nothing about hunting for its origin or cause, so long as we could get ahead of it, and I further stated that the experience of the past seven years had induced me to hope that at last its ravages had been averted. So long as a complaint may certainly be cured, we need not worry about hunting up the cause.

I have been engaged in growing pears in Iowa since 1847, with some intermission, and have lost fifty times as many trees by blight as I have now growing, In 1854, I was induced to cease cultivating them altogether to allow the grass to grow close up to the tree, only keeping it cut every few weeks, and to obviate the binding and repressive effects of this treatment by putting a wheelbarrow load of manure around each tree every autumn. Since that date, eight years ago, I have never lost a tree, and even saved some old wrecks which I had given up as past cure, which are now the most interesting specimens on the place. I have dwarf pear trees that are twenty-four years old, and in perfect health and vigor. One of these has borne ssven bushels of fruit this summer, and all that I would spare from it has sold at $2.50 per bushel, the buyer coming after them. All my trees are most vigorous and loaded with fruit. The success of the present year has been that of the preceeding seven. I do not give this treatment at all as a cure for blight, for it may return again, but I do wish to make it public, that others may try the same method, with, it is hoped, the same success. Even those who do try and consider it a failure, ought not to give it up, but try again. It is so simple and easy of adoption as to be witein the reach of all.

That general favorite and fine old Edglish pear, Williams' Bon Chretien, or Bartlett, as we call it, is the best pear we have, in my opinion, for Iowa. It is a fall fruit, but I have recently found that it is the very beast early summer pear. Some of my trees were thinned when the fruit was not half-grown. It was thrown under the trees as worthless, and after lying there some weeks, observing their beautiful golden color, I examined them, and found they were most excellent, having, even at that early stage, the fine vinous flavor of the mature fruit. Its faults are a tendency to too early and overbearing, which soon exhausts and destroys the tree. No dwarf tree under five years old ought to be allowed to bear more than a half

bushel or three pecks of fruit. All that on the extremity of the limbs ought to be remorselessly picked off, hard as the task is for the owner. The more the fruit is thinned the larger what is left becomes, and the apparent loss is thus made up.

As I believe that every fruit grower in Southern and Central Iowa may succeed with this delicious fruit if he makes the attempt in the right way, I wish to make this as public as possible, that others may also try what has been so very successful with me.

Our Blackberry Crop.

We are now (Aug. 15th,) right in the height of our blackberry harvest, and truly it is a *harvest.* Our plantations are largely, young and just coming into bearing. We have thus far gathered about 250 bushels, and shall get at least 200 more.

We have about 25 pickers who are gathering the fruit and two men to remain among them to see that they properly gather it. It requires great watchfulness in gathering the blackberry, to see that half ripe fruit is not picked, for where such are in the baskets it damages the sale very much indeed; as there is nothing that relishes so poorly with most people as sour, half ripe blackberries. They should be perfectly black when picked.

We have found it best not to pick a plantation oftener than every other day, while twice a week is really often enough for the Lawton, as they then ripen up sufficiently to give heavy picking without pickers being so tempted to gather half ripe fruit.

Another important point is to have pickers "go slow," and look carefully all under and through the bushes, for if they do not do so, many will be left that will become "dead ripe" and soft, and perhaps another person being on such rows the next time, who is more careful, will get all, including these over-ripe berries, which when put into the baskets with the rest look mussy and dirty, and hurt the sale of the fruit. It is part of the business of the overseer to pass among the pickers with a long stick or cane, and when any of them come to a thick matted place in the rows, he runs his cane in and opens them so that pickers can get their hands and arms in without too much pricking.

The Dorchester, as usual, proves to be the earliest berry with us, being fully a week earlier than any other sort, and producing a fine crop of most delicious fruit. It is very similar to the best and largest specimens of the old fashioned blackberry that we used to find in patches by making our way under the clumps of bushes. Next comes the early Wilson—a magnificent berry—but with us a very shy bearer, for some cause, which is a mystery to us, as it proves a splendid yielder in most other sections. We said next but we will modify this slightly, as we got a light picking of Kittatinny, as early as the Wilson, but a few pickings of the Wilsons when the price is high—clean them, while the Kittatinny hangs on two weeks.

The Kittatinny is a magnificent berry, both for home use and market, being sweet as soon as it turns, and of excellent flavor, being hardy and a glossy black.

The new Rochelle or Lawton—what shall we say of it—wonder of wonders! We have picked from our plantation nearly two weeks and yet let a stranger go into it and he would hardly say they had been touched. They are now literally a green, red and black mass of fruit all over the plantation. We venture nothing in saying that they will yield *double* the amount of *any other sort* we have ever seen, and by not picking them *oftener* than every other day, and then using great care to have the *blackest* picked, we have no trouble in selling them quick at 12 to 15 cents per quart.

We have tried a number of new sorts, such as Wachusetta, Sable Queen, Snyder, Superior, Western Triumph, &c., and find them all very good sorts, but as their great merit and the claims of their originators are more especially as to their hardiness, and as all sorts went through our past winter unharmed, we can pass no judgment on them as to that point.

Some of these winters when blackberries are tried and killed, we can then pass judgment as to hardiness of different sorts. We can only say of the Hance seedling, it sustains its character as to *deliciousness* and general bearing qualities, it being the most melting, delicious sort we have ever tasted.

Our blackberry crop closes up our fruiting season for marketing purposes, except grapes and Catawissa Raspberries, which show a wonderful prospect for fruit.—*Small Fruit Recorder.*

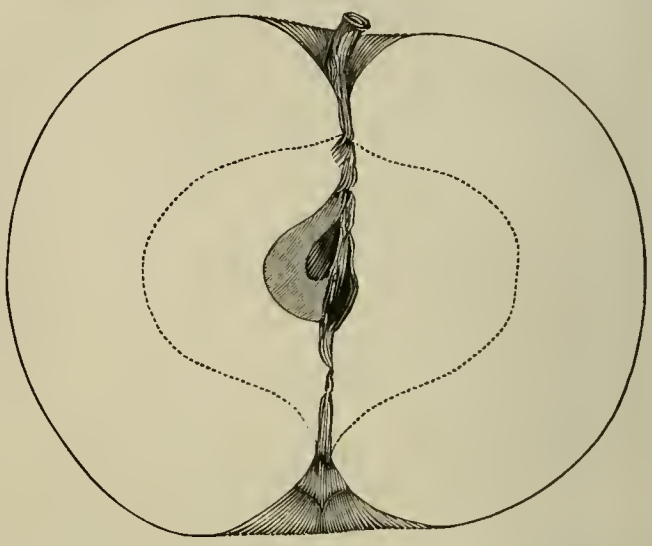
Improving the Quince.—A correspondent of Tilton's Journal of Horticulture in urging that more attention should be paid to improving our various fruits and flowers, suggests that with care and patience we may yet obtain a quince as melting, palitable and digestible as pears. What a grand fruit we should have, if such a result could be obtained, if we could retain the flavor and aroma of the present quince and add them to the soft and melting juice pulps of the peach or pear! Such a result is by no means improbable. Less labor has probably been devoted to improving the quince than has been bestowed on any other fruit of the temperate zone.—*Pacific Rural Press.*

Mammoth Cluster Raspberry.—This fine black cap is highly spoken of in nearly all the reports from different part of the country.

Pewaukee.--The $50 Prize Seedling Apple.

By G. P. Peffer, Pewaukee, Wis.

Ed. Pomolooist and Gardener:—I herewith send you outline of the Pewaukee Apple, as it is one of the best and hardiest varieties for the Northwest. Its parent is Duchess of Oldenburg, which it somewhat resembles, but a larger and stronger grower, and long keeper, also constant bearer. I fruited it for a long time, but did not exhibit it until premiums were offered to some extent, and at the State Fair at Janesville, in 1865, Mr. Lawton proposed to offer $100 premium for a seedling of Wisconsin that should be as good as *R. I. Greening*, and as hardy as an oak. I offered to compete for that prize, or rather challenged him to offer it, when he withdrew his proposition. My No. 2—now Pewaukee—is the apple I challenged him with.



Fruit medium to large, round, obovate, waved; surface bright yellow, partially covered with dull red. Striped and splashed, covered with gray bloom, and overspread with whitish dots; cavity small; basin shallow and slightly plated; calyx rather large; stem variable in length, with a fleshy substance on one side, from one half to one inch long; core small; seeds dark brown, pointed; flesh yellowish white, breaking, juicy; flavor sub-acid, rich, aromatic, spicy, something like Jonathan; quality good to best; somewhat coarse in texture; season January to June.

Tree a vigorous, upright grower, wood very hard. Shoots dark brown, smooth with many white specks, as hardy as its parent—Duchess of Oldenburg.

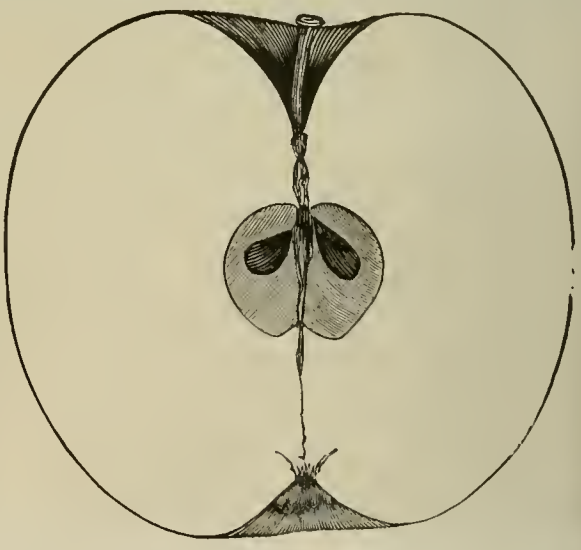
After fairly considering the merits of this apple, the Wisconsin State Horticultural Society named it the "*Pewaukee*," and awarded to it a prize of $50.

The "Hartland Beauty."

Ed. Pomologist and Gardener: I have some seedling apples that are attracting some attention and I will send you a fine specimen of one to examine and tell me what you think of it. The tree of this variety is good in every way. It will do to class with the hardiest of the hardy. Leaves very dark green; new growth very slender and tapering at the tips; wood very tough and hard.

Stephen Jackson.

Marietta, Iowa, 9th Mo., 1871.



Remarks.—The apples were received in excellent condition, and now, September 24th, are jest in their prime. This apple in external appearance is almost a fac-simile of Ben Davis, is quite as handsome and showy and averages the same in size. Cavity and basid a little more shallow and shik specked with fine gray dots are the only external, distinguishing characteristics between the two. It is a sweet apple of good quality—quite as good we think, as either Sweet June or Jersey Sweet. Flesh very tender, white, crisp and juicy.

The "Herstine" Raspberry.

On another page will be found an engraving of this new raspberry. The "Herstine" is claimed by its originator, Mr. D. W. Herstine, of Germantown, Pa., to be a seedling from seed of the Allen, fertilized by the Philadelphia. Mr. Herstine has for many years made the production of seedling raspberries a specialty. Some years ago he commenced growing the Philadelphia and Allen alongside of each other for the purpose of crossing these hardy varieties. He then sowed the seed of the Allen, the result of which was some few promising seedlings, among which he claims special merit for the "Herstine," and "Saunders." The "Herstine" is highly recommended by good authority. A committee of the Pennsylvania Horticultural Society selected to visit Mr. H.'s grounds in the raspberry season, and report upon his seedlings, say:

"The "Herstine" is a strong grower, more so than the Philadelphia, a fine berry, quite as light colored, and equal in quality to the Hudson River Antwerp. Fruit large, roundish conical, light crimson; moderately firm; parts freely from the core; sweet, rich, and highly perfumed. Canes strong, erect, with a slight tinge of red where fully exposed to the sun; spine large and strong, very scattering; nearly white, the ends slightly tinged with brown. Leaves large, broad, and flat, on young canes, but on bearing shoots slightly wrinkled. Apparently a very productive variety."

We made the acquaintance of Mr. Herstine at the late pomological meeting at Richmond. He spoke to us in positive terms of the hardiness of this new seedling, reckoning it even more hardy than the Philadelphia. If such be a fact, with quality equal to the Antwerp, it will proc a most valuable acquisition to the raspberry family.

Another way to use Grapes.--Grapes in Missouri.

By S. Miller, Bluffton, Mo.

Ed. Pomologist and Gardener:—The crop of grapes has been so abundant here that the question will no longer be, "what shall we plant?," but what shall we do with the grapes that we already have? Will not some one invent some new use for them? We cannot eat them all, nor is wine making very profitable, when wine sells at 40 cents per gallon. For ourselves, we are quite in a fix. Having been sick for a month, and not able to look around for vessels to put the must into, we now find the grapes ripe, and no casks available, for love or money.

This is mortifying to see. Tuns of the finest Concers that we do not as yet know how to dispose of. To sell them at $2 per hundred pounds, would be something, but there are no purchasers even at that low figure. I tried one experiment that will no doubt be new to some of your readers.

The juice of the grape fresh from the press was used the same as cider when apple butter is made; boiled down to about one-fourth, then good peaches cut in, instead of apples. We used about two barrels of must in this way, and a better thing to "spread upon buttered bread" I have not yet come across. That it should be sweet is not at all surprising, when we consider that forty gallons of our Concord must, this season, contains over eighty lbs of sugar.

If the proper apparatus were at hand, I would undertake to make grape sugar. One half of my Ives' are drying on the vines. No rain for weeks; quite warm with the exception of a few days and nights.

My experiments in drying grapes this season, have not been satisfactory.

Remarks. Use apples in place of peaches, where they are plenty, and the latter scarce. It strikes us that a Jonathan, Wagoner, or some other of the fine flavored apples with juice of the vine, would make apple butter fit for the gods.

The Lombard and the Curculio.

By H. Gregg, Downey, Iowa.

Ed. Pomologist and Gardener: I will give you a bit of my experience with the Lombard plum and the curculio. Some four or five years ago I took a feather and put some kerosene on all the plums on one small limb; those were all the plums saved on the tree that year; the rest were all stung as usual and dropped off. Last season (1870) I rolled up woolen cloths and saturated them with kerosene and hung them in the tops of the trees, and my plums were all pefect—ripening up a very full crop last season. This season I have tried a different method with equal success. I took strips of cotton cloth and wrapped around the trunks of the trees some 18 or 20 inches from the ground, and then satuarated the cloth with kerosene, and repeated the application once in ten or fifteen days during the curculio season. I neglected to put the cloths on the trees until after the curculio had commenced opperations this season, consequently some few plums were stung and fell off; but I do not think one plum was injured after the kerosene was applied. The trees are so loaded with plums (August 12) that I have had to prop and tie up almost every limb. They are just beginning to ripen and look splendid.

Now, others may not have the success with kerosene that I have. If that has saved my plums, and I think it has, it is worth a trial by every one who would save their plums at a trifling outlay.

I profess little or no knowledge of the habits of the different insects, but I manage to raise almost every variety of fruit in a small way that is adapted to Iowa climate.

About Plums--Smith's Orleans.

By S. D. Redfield, Vinton, Iowa.

Ed. Pomologist and Gardener:—When Doctors disagree who shall decide? I took some plums to the State Fair for you according to my engagement, but you not being present on that day, I placed them in the care of Mr. Budd, Superintendent of the Horticultural department, to hand you if you were present during the fair, that you (and the committee on fruits) would give them a name. Mr. Budd and several other Horticulturists called them the Lombard Plum. I did not agree with them, as I could see very little resemblance, the Lombard being only a medium plum in size.

On my return I examined my Horticultural books and I find that Barry gives a *true description of them* in his fruit book, on page 339, No. 39, "*Smith's Orleans*," "A very large and excellent variety, oval, reddish purple with a thick coat of bloom; flesh yellow, firm, juicy and rich; tree vigorous and very productive—last of August." It is the most vigorous and hardy plum tree I ever saw, it is more hardy than the native or wild plum.

I have some wild plums growing within ten feet, that blossomed full, and were all killed by the frost in April, while "Smith's Orleans" escaped. I graft them on wild stocks, and gash the stocks and they expand with the growth of the graft

I cut some grafts back in the spring and the limbs have grown five feet and are still growing. When we can raise plums of the first quality in three years from the graft that will measure five inches in circumference, the question is settled in regard to plums in Iowa.

I must confess that I was very much disappointed in the Miner Plum that I saw at the State Fair, after so much has been written in regard to them. I am well aware that people differ in regard to taste; in my opinion we have wild plums growing here equal to them in every respect.

Remarks.—We regret that we did not have an opportunity of seeing the plums.

Making Cider Vinegar.

In answer to inquiries, a New Jersey correspondent of the American Institute Farmers' Club, furnishes the following information how to make cider vinegar:

"The apple in its natural, and also in its cultivated state, from which cider is made, contains among other things, the germs of alcoholic and acetic fermentation. Cider, when first pressed from the pulp of the apple, contains among other things, acetic acid and sugar, or saccharine matter. Immediately after being reduced to pulp by the process of mashing or grating, as is the process in cider making, if exposed to the air and a certain amount of heat the alcoholic or vinous fermentation commences. Simultaneously with this commences the acetic fermentation, the result of which is vinegar, and this is rapid or slow, according to certain conditions of air and heat and light.

No cider or alcoholic liquid will turn to vinegar, without the presence of oxygen. It is the union of oxygen with the alcohol that forms cider vinegar. To effect this is the art of vinegar making, as I understand it, to accomplish which different practices are used. I state mine only, as it includes the whole process from the planting of the trees on which the apples grow, down to vinegar making.

I aim in my selection of the fruit to grow those which in my opinion, have the most acetic acid inherent in them, and those that have the greatest amount of saccharine matter. I aim to gather them when fully ripe, keep them clean, grate very fine, and press the cider out without the addition of any water.

Put the cider in perfectly clean, well bound, white oak casks or barrels, fill full to the bung, let them remain in the open air until after the alcoholic fermentation is completed; then rack off the clear liquid being careful not to allow any of the pomace to run out with the pure cider; then empty out the settling, and wash out the casks, and put the cider back to ripen; remove the casks to a dry, warm, airy place; let them remain a few days, then procure another cask as before stated, made of the same material, clean, and well bound, and place it beside the full one, and commence by drawing out daily one gallon from a faucet in the head, and let it fall as far through the air as can conveniently be done, into a wooden vessel, and pour from as high an elevation as can conveniently be done, into the other barrel; continue this process daily until all the pure, clear cider is drawn out. Cleanse as before if necessary, and commence putting back in the first cask, and this alternately until vinegar is attained.

Wine Growing.

The term *wine growing* has become so common that one can seldom take up an agricultural paper without seeing it; as though it was a legitimate term, and wine making an agricultural avocation! Should the farmer who raises barley be called a *lager beer grower*, or the one who sows rye be a *whiskey grower*, there might be some consistency in the term "wine growing." As it is, we can only regard it as one of the "tricks that are vain," to artfully give a tone of respectability to a nestling of the serpent family.

The wine business may be a very profitable one

and if beer, whiskey, etc., were not "profitable," not so many in San Jose, and other little towns, would be getting dissolute, lazy and worthless selling them. But in what sense so profitable that every agricultural paper in the land should so spiritually bend the willing knee to the shrine of Bacchus; should advocate "*wine growing*" as a worthy enterprise, and stimulate themselves into the idea that they are doing the country service? We might hunt up a formidable row of statistics to prove that "wine is a mocker"; that for every ten that flourish in the business of wine making, five hundred are out of pocket, and at least fifty forever ruined. Not so with genuine agricultural productions; the producers and the consumers are alike benefitted.

But wine is *not* an agricultural production. It does not exist in nature. It may be made from grapes, and some other sorts of useful fruits; so may many other extracts and poisons. But we totally repudiate the insinuation that "wine growing" has any agricultural significance. We can never even recognize the manufacture of fermented and spirituous liquors as a reputable industrial enterprise.

To claim to favor temperance from principle, and at the same time regard wine making with favor, is a trifle beyond our present capacity. We were once upon a time inclined to favor the wine interests of this State, as tending to decrease the use of ardent spirits. But fifteen years of close study and observation on this hobby, has thoroughly convinced us that wine is an insidious enemy. Its victims are too often the thoughtless youth of both sexes, and it starts on the road to ruin many a fair prospect, that might but for its blight of moral obligations, move on to usefulness and happy accomplishments. It is a first round, not on the ladder of fame, but to the lower defile of degredation and disgrace. Regarding it thus, how can we but renounce it?—*Santa Clara Valley (Cal.) Agriculturist.*

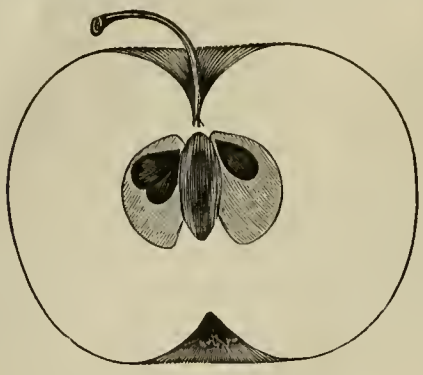
Mildew on Gooseberries—Preventive.

A correspondent of the Canada Farmer says: "About thirty years ago I got some plants of the English gooseberry, and when the time for fruit came around they yielded nothing but poor, dirty looking, worthless stuff, year after year, on account of the mildew. At the time I could not understand what was the matter—not even knowing what mildew was. After several years of trial I pulled up the bushes. About eight or nine years ago I procured some bushes of the English variety, of two different sorts—one red, the other green; but, as on the previous occasion, these were affected with mildew. By this time I had heard of preventives, such as sulphur, tar, bark, boards, etc. I tried all of these, but with little success. Being very fond of gooseberries, I determined not to give up, and remembering that one of my bushes, of the first lot, had by oversight been spared, it being in a corner of the garden where there was a grass plot, and not being attended to, the wild grass grew as high as the bush; still there was a little fruit, small in size, but perfectly sound from year to year. It then occurred to me that if sound fruit grew among a tangled mass of wild grass it might have the same effect to spread grass on the ground, under and around the bushes. For the last six years, as soon as the grass will cut, say nine inches or a foot long, I have spread a quantity of new cut grass under my bushes, and let it remain all summer. That, combined with very high cultivation and close prunning, has been a complete preventive of mildew for the last six years. Whether this simple and inexpensive remedy will hold good on all kinds of soil, I am not prepared to say. One thing I can say, as all my neighbors can testify: I have had splendid crops of large sized sound berries, some of them as large as small plums. My soil is a sandy loam, gravel sub-soil."

The Peach Borer.

A correspondent of the *Plantation* feels assured from long experience, that the cheapest and most effectual preventive of the peach borer is to raise a mound of earth about ten inches high about the stem of the tree early in the spring, and to remain until the last of September. Says: "About the middle of May the peach moth in its egg-laying state makes its appearance, and during the summer months deposits its eggs in the crevices of the bark at or a little below the surface of the ground, which soon hatch if the weather is wet, and cuts through the bark, where it remains without giving any sign of its existence or whereabouts until winter, when the gum is seen exuding through the bark, where, upon examination, the borer is found in the shape of an ugly red headed worm, having eaten the inside bark and tender wood down the roots of the tree for several inches, and sometimes girdled the tree. When a hill of earth is raised round the tree in the spring, and kept there during the summer, the moth will deposit the eggs at the surface of the hill, but when the earth is removed, they die for want of moisture, or can be easily found and taken out with the point of a point."

Fishy.—An exchange says there is a grape vine of the Oporto variety in Seneca county, N. Y., from which 81½ gallons of wine was made last season. That $113, was realized from 56½ gallons. That the stem of the vine is as large as a man's body (don't tell how big a man) and the branches cover three-fourths of an acre.



Sylvan Sweet Crab.

ED. POMOLOGIST AND GARENER:—Many citizens in the Northwest will be rejoiced at the production of so valuable a Siberian apple as the samples of the Sylvan Sweet Crab which I send you. It is a new variety originated in this county from seed of the Siberian Crab.

The original tree has borne this summer a handsome crop of such as I send you. It is very handsome and vigorous—rivaling the Transcendent which it much resembles in wood and leaf.

Of its quality you can judge from the specimens I send you. I have tested it by cooking and baking and find it delicious. For an eating apple from the hand it is excellent and I should think would make an article of cider of delicate flavor, making a splendid companion apple for the Transcendent.

Please test the samples I send you and inform us through the POMOLOGIST you opinion of it should you deem it proper.

A. L. HATCH.

Ithaca, Richland Co., Wis.

REMARKS.—We can fully endorse what our correspondent says of this little beauty. It is truly no less attractive than the Transcendent. There is nothing in taste or quality that should class it among the crabs, no more than about Tallman or any other first class sweet apple.

The April Freeze of 1870.--Dr. Howsley's Theory.

ED. POMOLOGIST AND GARDENER:—The August No. of your paper is before me. In an article by the "Corresponding Editor," I see that he makes complaint of a scarcity of fruit (apples and pears) throughout the west, and undertakes to account for it by ascribing it to the April freeze of 1870.

Now, while *we* lost our crop of fruit *last* year, in all probability from that cause, this year instead of having a failure, we have a most bountiful crop. Yes, apple trees here are generally bending with their load of fruit, and pear trees are just *breaking down*. And if Mr. Howsley's theory be correct, why does it *make* us a crop of fruit, while it *unmakes* his?

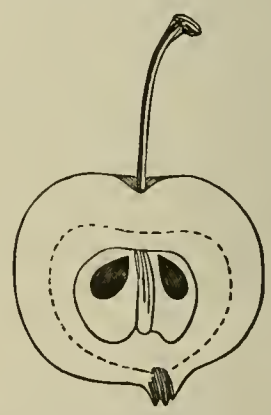
Of course there are some varieties that are partial failures with us, but I do not recollect to have *ever* had a more bountiful crop of fruit than during this year. Nor is this abundance confined to a few miles; for as I have travelled somewhat in this and adjoining counties, I must say that its extent is certainly 50 or 60 miles. So, Mr. Editor, I think you will have to try your hand again.

Our grape crop is equally as abundant as our apples and pears; so you see "we can live on the fat (fruit) of the land." I have a good many thousand pounds of grapes; but I am not like your Adel correspondent, worrying about getting rid of them. By the way, does your correspondent know what a splendid fruit good ripe grapes are when canned? If not, let him try it, as my family did last season, and he will be astonished at the result. When people learn that the grape has other uses than for wine-making, that it is one of the best of fruits for table use, it will probably not go begging in our markets.

But when I have a surplus of fruit, I generally *sell* it—or at least I have never failed to do so yet. If one can't sell his grapes at six to eight cents per pound, then let him sell them at five or even three cents, and he will make more money than the man who sells his wheat at 75 cents per bushel.

IRA PHILLIPS.

Keosauqua, Iowa, Aug. 14th, 1871.



Longworth's Golden Sweet Crab.

Mr. William Longworth, nurseryman, Bloomington, Ill., sends us specimens of this seedling originated by him some years ago in his nurseries near Dubuque, Iowa. Mr. L. says it is a seedling from the little Red Siberian Crab. It is of a rich yellow, pleasant, sweet, very handsome, and took the first premium at the Iowa State fair some years ago.

Fruit round; stem long and slender; cavity near-even; basin none; calyx closed; skin thin, clearly, rich yellow; flesh white, sweet, tender; core compact; seeds large for a Siberian apple.

The Vineyard.

Vineyard Work for October.

By The Associate Editor.

What grapes are not sold may now be made into wine, as we stated last month.

Must of Concord grapes should weigh by Oechles' must scale, at least 80 degrees, to make good wine. Neither sugar nor water should be added to any must, for a grape that does not contain enough of sugar is not fit for that purpose. Wine should be fermented at a high temperature, at least 80 degrees, if you wish it to keep in warm weather. The natural temperature of the must when working is the best indication to be governed by in keeping the outside temperature of the room, without specific rules. When the wine is done working it must be bunged up tight to completely exclude the air, and placed in a cold, dry cellar; keep a small vent or gimlet hole over the bung, closed by a spicket, to occasionally withdraw, to give vent to any increase of carbonic acid which might endanger the bursting of the cask.

Tender vines may be covered with earth in cold, severe localities, but this is not necessary in Kansas. Vines too tender for this climate should never be planted in a vineyard.

Layers and rooted cuttings may be taken up after the first killing frost and heeled-in for winter. New vineyards may also be made, and the vines planted any time in the fall when the weather is not freezing cold, and you will gain nearly a year thereby in growth over spring planting, but the tops of the vines must not be left exposed—(cover over with earth.) Cuttings may also be made after the first hard frost, and planted if desired, or heeled-in for spring planting. In heeling-in vines or cuttings, pack the earth tight amongst them to exclude the air as much as possible; loose packing is the general cause of many vines being injured in heeling-in. We do not advise ploughing the vineyard in the fall if it has been kept in good order through the season, as it makes the ground too loose and liable to wash by hard rains, and also makes it in bad condition for pruning the vines, particularly when the ground is a little wet, or during thawing or freezing weather.

The earlier you make cuttings after the falling of the leaves, the better they will grow.

Even Norton's Virginia and Delaware will grow if so made and planted very firmly, particularly if you remove the bark from around the lower bud. There is but little difficulty in growing any variety in this way except perhaps the Vulpina species, which we have not tried.

Culture of Grapes in Graperies, No. 1.

By S. J. Parker, M. D., Ithaca, New York.

Editor Pomologist and Gardener:—The culture of choice foreign grapes under glass in this country dates from before the war of independence, from which time to this the fair-looking Sweetwater, the perishable Chasselas, the delicious Frontignac, and the luscious Hamburg have been here and there carefully ripened—efforts mainly confined to the vicinity of large cities, isolated, and, to the surrounding inhabitants, a mysterious luxury of the more highly educated and rich. Not until of late has the idea become justly prevalent that no American citizen possessing a homestead, no matter how humble, need be without his own out-door vines, nor without his in-door foreign vines in his grapery, with its glass gleaming beneath our crystal sunshine. Not until recently has the simplicity of grape culture been understood,or have we had the patience to await its sure results.

We have supposed out-door vines required only to be planted and let alone, and if they did not bear of themselves, without pruning, the fault was in our climate—ideas too prevalent yet with the great mass of our inhabitants. We have been led to believe in-door culture to be so complicated an art that none but imported vine-dressers could accomplish the task—an impression most skilfully continued by this class of persons; while we have forgotten that in mechanism, art, and agriculture our real advancement lies mainly in native-born talent, and that when self-reliant we make progress. We have only just begun to learn how little time and care a grapery, giving as much as the family can eat of these heaven-born fruits, requires; how surely tons

of them can be raised for the market by the thrift and versatile talent of our own citizens. It is true the glass grapery cannot be neglected, nor can the laws of growth and ripening be disregarded with impunity. Still, it is by a very simple fixed routine, easily understood, that these delicacies are ripened so as to melt in multiform flavor on the palate.

Nothing cultivated needs less care, is more easily understood, or more certain to be a successful crop, throughout the whole domain of the United States, adding to the millions of our products.

He who studies the matter for himself will find no complicated rules or wonderful secrets to be learned, but everything so plain that a child may learn what is requisite, and the labor so small, when the system is acquired and the few necessary mechanical implements rightly made, that the invalid or the youth can do the work.

A single reflection on the main causes of the coldness of our climate will show the need of glass for the culture of these varieties of grapes. We have a continent more narrow than others at the South, growing more wide, but which does not expand to its vaster width until the regions of perpetual ice are reached towards the pole, where unfortunately it attains its greatest breadth, and sterile, cruelly cold, as it is, clings, perhaps without the "open sea" so fondly dreamed of, to the pole itself. It is to this vast icy region, the utility of which is not very apparent, we must attribute the cold so contrary to our feelings. Another cause, if the theory of prevailing upper currents is true, is that we are again unfortunate in being on the Eastern, instead of Western shores of the continent; for the corresponding cold region of Asia, with its tuberculous consumption, is there due to the loss of oceanic heat, that makes Oregon and California, as well as Eastern Europe, with a more healthful climate for the lungs, ripen fruits better than the Eastern States. But be this as it may, it is to the unusual formation of the continent, and to the ice of the Northern portions of it, that, despite a genial sunshine, with remarkable purity of atmosphere, are due the cold and frosts that mar our products, and which by a sweep of a vast "*Norther*," or cold-bearing north wind, at times cuts off a whole cotton crop when slightly above ground, compelling, as the writer has himself seen, every planter, even to the shores of the Gulf, genial as the climate there is, to replant his cotton as late as April or May, thus doing over again, often when seed is scarce, the whole spring's work.

The same cause, later in the spring, cuts off the peach, apple, and the promising corn of the Northern States, and even in June desolates the Canadas. It is this, with the consequent cold night air and skies that sends mildew and rot into our foreign grapes.

So that from the Northern Lakes, almost or quite to the far Southern cotton lands, he who would taste the fruits of Egyptian, European, and other Eastern vines, so exquisite, must rear them under the protection of glass. And the main elements of the details of their growth arising out of this same fact can be stated in a word to be *the further North the more completely must the vine be under control.* The "border," that word so unmeaning to the ordinary American reader, or the soil in which the vine grows and has its roots, at the extreme North must be wholly within the house, to enable the culturist to give or withold water, heat and air at pleasure. The middle States may make the border partially in and partly out of the house, and at the far South it may be wholly outside of the glass, unless the control of moisture be an object. The same rule applies to ventilation. The North must ventilate cautiously at the roots: the South may copy the open foreign ventilation, or have the house wholly open at the roots.

On these facts, more than others, should the variations of the structure of vineries be made.

The main essentials of grapery cultivation are: a *suitable border*, that is, suitable soil and shape or spot for the soil to be in for the growth of the vine; a *suitable house of glass; suitable ventilation*, or means of supplying air; an *ample supply of water*, as near the temperature of the soil as possible; and a *choice stock of vines.* These obtained, there is no one in the family of a farmer or planter, the laboring man mechanic, or professional man, as well as the man of leisure and fortune, who cannot do the rest.

The daily routine resolves itself into the opening the house for ventilation, the closing the house or stopping the ventilation at suitable hours, soon learned; the watering to suit the state of the vines and fruit; checking overgrowth, or promoting growth or renewal of the wood; and guarding against or destroying insects and disease.

This is assumed as the routine, not because more cannot be done, for there are complicated modes of forcing the vine, and fanciful rules, laborious enough; but of these neither time nor utility demands particular mention. The fact that under so many details, so many varied plans, the vine bears nearly alike, most emphatically declares the vine *endures* but does not *need* these arduous trainiugs, endures rather than is benefitted by them. Thus there are graperies scarcely watered the whole season; others watered night and day, from eight to ten times in the twenty-four hours; one only by broad sunlight, another at sunrise and sunset; one with the vines cut, girdled and mangled, another left to the greatest freedom; one with a never varying thermometer, another with the most abrupt changes of temperature. Now it is not said that these diversities produce no perceptible results, for

such is not the case, but it is a matter of surprise that the vine bears uniformly under them all; this one fact showing another more important, that the pains taken beyond a certain limit is only, in the blunt old proverb, "the labor for the pains." Therefore it may be boldly asserted that any one of competent, ordinary skill can in a single season learn to set, at a given hour in the morning, say at nine o'clock, his ventilator for the probable temperature of the day, and at another hour, say an hour before sunset, close the ventilator, and he will be surprised to find how very few days of the season he will have failed in setting the gauge mark as he ought; how rarely a sudden change unanticipated has come. Or if he prefer the usual meal hours of the farmer, say 6, 12½, and 6½, for the summer, he will find a few moments thus at morning, noon and night, will be all the time he need spend to do the whole work of the grapery; especially if a wife or a child is at hand at the hour of 10 or 11 a. m., to cast an eye on the thermometer, and slightly modify the temperature, if necessary. Thus in these few leisure moments of the day, he can accomplish everything, except when the fruit is setting, or "the bunches are to be thinned," and even these he can see to, if he cultivates only for his own use, by a little more attention for a few days at these times.

Still further, to see how simple is the routine, read the published thermometrical records of various persons, and the results on the fruit. One reads 90 degrees to 110 degrees, another 80 degrees to 90 degrees, another 60 degrees to 80 degrees, and some speak, incredible as it may seem, of even 150 degrees to 200 degrees, or more at times in damp atmosphere. Yet they inform us they ripen their fruit in about the same time.

Sometimes the lowest degree ripens the fruit best. Again, one says, "open at night for some ventilation," another says, "do not ventilate at all at night at any time," and each ripens good fruit. So that among these diversities the whole attendance daily resolves itself into *do not burn the fruit by excessive heat, and adhere rigidly to any plan of temperature that may be adopted.* Or, in other language, commence your grapery and take care of it by the simplest, shortest, and most efficient plan you can devise, and the luxuriant bunches are yours.

The national importance of fine fruit needs no remark here; the only object is to make plainer the simplicity and certainty of grapes under glass. The peach of the South so plentiful in some parts as to cause the peach brandy still to be more common than the cider-mill of New England, evinces how readily it can be grown. The farmer of the Middle and Northern States, with his hundreds of varieties of apples, peaches, pears, and plums, often in a year fruiting fully that number of varieties to perfection, adds to the national wealth. And could every one of these be persuaded to put up the glass structure, more would be gained in production. Now, when thousands of graperies are being built all over the United States, and especially as the great West begins to erect them, it is the duty that every journal devoted to fruit culture, explain what is necessary, and encourage the ripening of those kind of grapes whose exquisite flavors cannot be had out of the vinery, for few taste or know what these time honored fruits are. With the rush of American enterprise we are, in the Yankee phrase, "going into" foreign grapes, under glass. We need *progressive conservatism.* Soon he who goes from Maine to the Rocky Mountains will see vineries everywhere over much of this territory. They are now being built, and they should be made wisely. How far they may be extended South experience must tell. At the North there is no choice, they must be built there, and it is believed everywhere over our national Eastern domain. Wealth is already expending on them her highly-valued thousands, and poverty too counts her dimes as she builds them, and our advice is, build them well. Build wisely.

(*Continued in next No.*)

Non Culture in Vineyards.

By Jessie M. Mellborn, Covington, Ga.

Editor Pomologist and Gardener:—In your interesting journal of August, 1871, on page 195, we have an instance given of *non cultivation*, and non prunning of the vine, and of their happy results. And it is not unfrequently that we see in the various journals instances of non pruning, growing the vine in weeds, grass, and on trees, fences, &c., and of the wonderful results. But, Mr. Editor, what have these isolated cases to do with vinyard culture generally? Who has followed this practice in the field vineyard for five years in succession? I am persuadad that if such neglect was followed for five years in succession, that by the end of that time at least, if not before, the vinyard would be run down; while those who cultivate would still improve yearly. I do not wish it understood that I am in favor of this wholesale, close, short pruning in vineyard culture practiced by some, but I do think that I would prefer clean culture, but not deep; and think that I have valid reasons to give for it. But as my experience is but limited in grape growing I would ask, what says the Associate Editor to this plan of non culture?

It does seem to me that it is getting high time that the science of grape growing should arrive at least, at some definite and settled conclusions. Some are advocating one mode, and some another, all too, claiming valid reasons for their theory and practice. In this multitude of council were the novice to read all that is written, he would be left in complete con-

fusion, unless he should study the nature and habits of the vine, and the circumstances surrounding the various modes recommended. Our common wild grape is much improved both in growth, size, and flavor of fruit by domestication. But after all, I do not think that grape growing is attended with so much mystery as some of our grape growers would have it appear, and yet I would not turn out the vineyard to grass, weeds, hogs, cows, goats, trees, &c.

What we Should Require in all New Varieties of Grapes.

As to the characteristics which this society should require in all grapes seeking public favors: In my judgment, the first and most indispensable requisite —the foundation, without which no useful result can be reached—must be a healthy, hard and vigorous vine. Secondary to this, I would place productiveness; next fine flavor, size and quality. Do not think I underrate fine quality. I appreciate it most highly; but only admit its highest value when united with a hardy and healthy vine. What matters it how good a grape may be if it cannot be successfully grown? After an experience of near twenty years in growing seedlings and hybrids, I assert that there is no difficulty in producing grapes of the highest quality. But to produce such grapes upon perfectly hardy and healthy vines—capable of resisting severe cold and *oidium*, or mildew of the foliage—is a different matter, and a work worthy a life-long effort. The present depression in grape-growing interests, and the evident distrust of the public, especially of new varieties, I believe to be due in a large degree to the persistent and unscrupulous recommendation of grapes that have only the one characteristic of good quality of the fruit in their favor. Whoever wants grapes of this character may find plenty of them in the foreign varieties—grapes which in their exquisite flavor and delicacy leave nothing to be desired. But, unfortunately, they cannot be successfully grown in our changeable and capriciuos climate without expensive glass structures, and the most careful and skillful management. Many of the new grapes introduced as seedlings and hybrids have been found little better suited to popular use than the foreign kinds, simply because the vines were deficient in health of foliage and hardy constitution.

Since the introduction of the Concord, I know of no new variety superior to it in quality that has been found its equal in hardiness and absolute health and vigor of vine unless it be the Martha. And since the appearance of the Delaware, no grape of equal quality and hardiness, with better and healthier foliage, has been introduced. Now, I see no useful purpose to the public in multiplying new varieties, unless they are in some important respects better than those we have already. If we could produce a grape equal to the Iona, or the good old Catawba, borne upon a vine as healthy as the Concord, and ripening its fruit as early and as promptly as the Delaware, we should have progress in grape-cultnre worthy of the name. Or if we could produce a grape with all the good qualities of the Delaware, having heavier and more enduring foliage, capable of resisting mildew, we recognize at once a result the value of which could hardly be estimated. The hope of producing some such result has induced me to persevere through long years of discouraging and disappointing experience; and the determination to be satisfied with nothing less, has prevented me from offering any of my productions to the people. I can yet only announce that I am still experimenting; and still hopeful. The principal point, however, which I wish to enforce by these remarks is this: However good a grape may be, unless borne upon a hardy and healthy vine, it is of little value to the American grape-growers, and should not be recommended by this, or any other society, for general cultivation. I will further add that, in my judgment, no new variety not superior in quality to Concord or Hartford prolific should be tolerated, whatever its other recommendations may be.—*G. W. Campbell.*

A Fact in Grape Culture Important.

Here we would mention a fact which has come within our observation and experience, which, if generally true, is of some importance. It is this: That the third fruit bud from the base of the past year's cane throws out larger and better developed bunches of grapes than either the first or second. The grapes from these buds seem also better flavored, and generally superior to those on the first and second. In accordance with this hint we have adopted the plan of cutting the cane at such length as to leave the third bud, generally, and sometimes the fourth, when a good strong one, and then rubbing off the first and second buds, and leaving the third and fourth for fruit.

The number of fruit buds left on any vine must depend on the age and strength of the vine. If the vines are strong and vigorous, at three years, from two to three bunches of grapes may be allowed to mature on each, without injury. The next year the number may be increased, and so on increasing the quantity of fruit with the age of the vine. —*Pacific Rural Press.*

Toads in Paris.—In Paris, toads are sold at the rate of two francs fifty centimes per dozen. The dealers keep them in large tubs. Toads are also kept in vineyards, where they devour during the night, millions of insects that escape the pursuit of nocturnal birds.

The Vegetable and Flower Garden.

The Vegetable Garden.

BY W. H. W., HARTFORD CO., CONN.

On making hot beds—The first step toward making the hot bed is to provide suitable heating material; this is generally fermenting manure from the stable, fresh made, strawy, coarse and finer mixed together. This with a quantity of leaves, tree leaves from the forest or elsewhere are the best, to mix together makes a more lasting heat than the manure from the stable alone. Horse stable manure is the kind generally used from its quicker and more violent action, yet other farm manure answers instead; hut I shall suppose that horse stable manure is the kind to be had. During the winter there has been an accumulation thrown from the stable into a pile well filled with litter, long and short. Two to four weeks—depeuding upon how cold the whether may be—turn over into a neat compact pile, laying up somewhat loosely, a sufficient quantity of this manure for your bed, moistening it somewhat with hot water if the whether is very cold; shake up and immediately mix the whole as evenly as possible, leaving it in a neat round heap; a quantity of litter thrown over the whole will tend to hasten and even the fermentation; after the heap has well begun to heat turn it over again shaking it well to pieces; in three or four days turn again, bringing the outside again to the inside; in two or three days it will answer to use in the bed. The frame and sash all ready, now to making the bed. The length and with of those of the frame, set the frame facing south, length east and west, and mark around, remove the frame and dig out the trench two feet deep and fill in the maure evenly all over the bed, be careful to make every part alike in depth as well as quantity of manure, beat down with the back of the fork as the work progresses. Have ready a quantity of leaves and mix in freely with the manure as laid up. Fill the trench full, raising it six inches or more above level ground, being careful to build up the sides and ends square, and bank up. See that the top is level and perfectly smooth. The reason of being so particular in laying up the manure bed is to cause the bed to settle alike all over, or there will be inequalities in the surface, and also inequalities in growth of plants, etc. Now put on the frame and cover with the such and let the heat rise to its height, which it will do in about two days, when you may spread over the whole surface your prepared soil, which should have been sifted and placed convenient to dry. Cover the bed six inches deep with soil, raking and evenning it well; now put on again the sash let it warm up. If the soil is quite dry it will be well and to water from a fine rose watering pot, with warm water, and let remain twenty-four hours or more before sowing the seed. The reason, ofter for the want of success in starting seeds in the hot bed is too great haste in putting them in, time is not allowed for the heat from the manure to rise and begin to subside, and the undue heat destroys the life of the germ. After the heat has reached its height and begun to subside is the time to sow the seed, which we must defer to another time.

The Orange and Angers Quinces.

A correspondent of the Rural New Yorker writes: "Are the Angers and Orange quinces the same?" is a question I have had asked me a score of times; and my answer has always been in the negative. There are many varieties of the common Orange quince, some are nearly globular; others are pyriform; and there are also a great difference in size; still they are quite distinct from the Angers. I have varieties of both kinds now in bearing as I have had for many years past, and the difference between the two is quite marked at this time. The varieties of the Orange including the celebrated Rea's seedling, are now of a deep yello w color, skin nearly smooth, except near the stem, all very large, varying from three to four inches in diameter. The Angers are small, seldom over two inches in diameter, nearly round, with a slight elongation at the insertion of the stem; color dark green and the entire surface covered with a woolly pubescence. Although the Angers quince is much smaller, later and less showy variety than the Orange, its quality is excellent. It is also less liable to the attacks of the quince curculio owing, no doubt, to its hard surface and woolly coat; and ripening late it is a good keeper.

☞No plant yields anything like as much nutriment from the same extent of soil as the banana. Baron Humboldt estimated that it returns 20 times as much as the potato.

CROWN IMPERIAL.

SNOW DROP.

The Crown Imperial flowers in April, the bulb throwing up a vigorous stem three feet in height, producing near the top a crown of beautiful, drooping, bell-shaped flowers. The stem terminates above the crown of flowers in a tuft of glossy green leaves. There are several varieties, differing mainly in the color of the flowers, as yellow, scarlet, red orange, &c. The bulbs should be planted four or five inches deep and about a foot apart.

The Snow Drop. The first of all the Spring flowers is the pretty little Snow Drop. These should be planted in groups of from ten to twenty, and bloom best if not disturbed for three or four years. There are single and double. The Crocus follows close upon the Snow Drop, and is very suitable for planting near the edge of flower beds where it does not require removal.—There are blue, white, yellow and variegated under various names. There are the early and late Tulips, both single and double—the Dwarf Duc Van Tholl Tulips, Bizarres Byblyomens and Parrot Tulips—all pretty and desirable.—*Rock River Farmer.*

Delaware in Minnesota.—The editor of the Faribault *Republican* of a late date says: "We gathered ten pounds of grapes from a Delaware vine in our garden. Estimating five such vines to the sqare rod, an acre of ground would produce four tons of grapes."

Lifting Gladiolus Blubs.

To make a good display of Gladiolus during the summer and autumn, the bulbs should be planted at intervals of two or three weeks. Those planted first will, of course, ripen first, and I have found that it does the bulbs no good to let them remain in the ground for any considerable time after the stems and leaves are dead. Many of the earliest planted are now ripe, and I am digging and drying the bulbs preparatory to putting them up in their winter quarters. When one cultivates an extensive collection it is no easy task to keep each variety separate when digging, drying and storing. After keeping in flower pots, bags and small boxes, I have adopted the following described style of boxes:—Select boards one half inch or more in thickness and a foot wide, cut into lengths of four or five feet; then take common siding, six inches wide; and nail them around the wide board, which is to be the bottow of your box. Put one strip of siding lengthways throug the center, and then divide the sides into small sections, using the same kind of boards for partitions. In this way we can have ten to twedty boxes all attached, each holding six to twelve bulbs. Sech cases are very convenient, for they can be taken into the garden and as the bulbs are lifted each variety with the label dropped into one of the sections, and when the divisions are all full, the case can be carried into some out-house where the bulbs will dry without fuather trouble. the cases are set away for winter just as they come from the garden, and whenever a bulb of any particular variety is wanted, it can be found without difficulty, as the label should be placed on the top of the bulbs. In the spring the cases are carried out into the garden with the bulbs and the labels in a convenient shape for using. By using using cases as described, I have been able to keep from one to two hundred sorts of gladulous without the least trouble in the way of their becoming mixed, or in lifting, drying or storing in the winter.

Raspberries and Blackberries.

At the July meeting of the Montgomery (Ohio) Horticultural Society, attention was called to these two fruits, and we are gratified to see our commendation of the Kittatinny and Philadelphia so fully endorsed by so good authority.

Mr. Mumma had grown quite a list of varieties of the raspberry, but had found only four sorts profitable to grow for market, and these were Philadelphia, Red Antwerp, Doolittle and Mammoth Cluster. These varieties are hardy and very productive. The Philadelphia is not of the best flavor but it is good. Its immense yield of fruit will always make it popular with the fruit grower. The Mammoth Cluster is one-third larger than the Doolittle; bears in clusters, and ripens later than the Doolittle.

Mr. Cramer said the Philadelphia with him is the best bearer he has tested.

Mr. Ohmer said the Philadelphia raspberry is a favorite with him. He finds it perfectly hardy and unusually productive. Advises every land or lot-holder to plant one or two dozen plants of this fruit. These will produce enough fruit for a large family during the ripening season.

BLACKBERRIES.

Mr. Mumma has cultivated the Wilson's Early, Lawton and Kittatinny. The Wilson's Early has proved productive, and is of very fine flavor and large size. If confined to one variety he would choose the Kittatinny. This sort ripens more uniformly than the Lawton, is of better flavor, and has less core.

Mr. Cramer said the Wilson's Early ripens the whole crop of fruit in a few days, and he does not find it earlier than his Lawtons and Kittatinnies. It has claimed value on account of its earliness, but it fails on this test with him. It has no other qualities which make it equal to the Kittatinny and Lawton as a market fruit.

Mr. Ohmer said he prefers the Kittatinny to the Lawton. The former is ripe as soon as black, is more uniform in ripening, and fully as productive as the latter. The Lawton continues in ripening six weeks. No family should be without its blackberry patch, as with the raspberry, a few plants will produce sufficient for the use of a family.

[We suppose in "flavor" Mr. Mumma places Philadelphia in competition with Red Antwerp—if with Doolittle, we differ. It is not quite so firm—is more juicy but ships very well. Both should have a place in every fruit garden in the west.—Ed.]

Propagating the Verbena.—In reply to an inquiry of a correspondent concerning the propagation of the verbena, the Rural New Yorker says: Verbenas are propagated in the spring by taking young, soft shoots of this year's growth, making them about two inches long, and leaving only four leaves on each cutting. When well rooted, put them in two-inch pots; after they have grown three or four inches, plant in open ground. To have them flower well in winter, prune the plant severely, the first of September; give each plant to be taken up a top-dressing of fine manure; this will cause young shoots to start near the center of the plant. Before frost, take up those that are to be kept through the winter, and put in six- or eight-inch pots; they will usually bloom and grow vigorously if kept in a warm room. Do not water too freely until they flower. It is useless to keep verbenas in a cellar, as it is too damp. If young plants are wanted for the following spring, take cuttings as before stated, from the young growth; but never take up old plants or layers, as they are more liable to be infested with insects during the winter than young and thrifty plants. To have seed, select the largest cluster of flowers after the petals have dropped; when the seed vessels begin to turn yellow, cut them and lay them away until dry. The seed may be sown in March in hot beds, or in open ground in May.

Davison's Thornless Raspberry.

A correspondent of the Horticulturist speaks highly of this fruit. After three years experience he finds it possessing many good points—hardy as any other Black Cap, a good grower, a good bearer and thornless. "One can crowd through, and under and handle the bushes without one serious scratch. There are small thorns at the jointure of the leaflets, but they are only imitation. A lady's dress is safe, and the gatherer's hands are safe. Just contrast your experience with any of the thorny varieties—clothes torn, hands bleeding, and temper worse off than either clothes or hands. You are caught and twitched at every move. No sooner has one plague let go with a bit of your skin, than another takes hold by the coat tail; till you feel fairly whipped and afraid to enter."

We find it more economical for small garden lots than any other sort, from the fact that the plants may be grown twice as closely as any one of the thorny varieties. Of course thorny varieties must be set far enough apart to allow a free passage, while the thornless can be allowed to stand in hills just far enough apart for getting among them.

The White Wiegela.—Let no lover of shrubs omit from his collection the White Wiegela—*Wiegela nivea*, the catalogues call it. Its flowers are pure white, and it keeps in bloom longer than the other varieties. Last year it bloomed nearly all summer.

Entomology.

Dr. S. H. Kridelbaugh, Editor, Clarinda, Iowa.

☞ Send in the Insects.—Dr. K. is chairman of the Committee on Entomology for the State Horticultural Society, and would take it as a favor to be furnished with specimens of insects from the various localities of the State, by mail during this year. Those sending will please state all they know concerning the habits of the insects sent; what they are found feeding on, etc.

Gilded Enmolyphus, Chrysomelian, and Tarnished Plant Bug.

Dr. Kridlebaugh: — I send you herewith three varieties of insects.

No. 1 I observed on my apple grafts yesterday for the first time — did not see that they were doing any damage.

No. 2 I suppose is the grape vine flea beetle. They are eating my Clinton vines and apple grafts — are not very numerous.

No. 3 I find on my strawberries They commence work as soon as the berries begin to color, eating the outside of the berry off. They have eaten nearly all the few Charles Downing I had. I intended to send you some other insects, but could not capture them to-day. There are more insects this year than ever before.

D. M. Dimmick.

Monona, Iowa.

Remarks:—Your No. 1 — Gilded Enmolyphus, (*Enmolyphus auratus*, of Say.) a golden-greenish beetle about three-eighths of an inch long, is one of our most valuable cannibal insects. Its larvæ feeds on dogbane — (*Apocynum cannabinum*,) on which plant the old one will often be found, as it is its favorite plant on which to breed its young. On your apple grafts it is doing good — no harm.

Your No. 2—Grape-Vine Flea Beetle—(*Haltica chalybea*, of Illiger,) you suspect him right. In a future number of the Pomologist we will give an illustrated history of this pest of the grape-vine. See our report to State Horticultural Society, at its January session, 1871.

Your No. 3, The Tarnished Plant Bug, (*Capsus Oblineatus*, of Say.) This insect lives by sucking, not biting, and appears to poison every variety of plants it infests, and these are many; among which are the dahlias, asters, marigolds, balsams, cabbage, potatoes, turnips, strawberries, raspberries, and such trees as the apple, plum, pear, quince, cherry, etc. It delights in feeding on the young, tender leaves, which it gives the appearance of having been burned wherever it works. It hibernates in old rubbish during the winter, hence is ready for early spring work. It lays its eggs on the plants it infests, and hatches, and during the summer may be found on the plants, young, green and wingless, mixed up and in company with the old ones, which have wings. To fight this insect is a difficult task, from the fact that it feeds on so many different kinds of plants. Is during warm weather very active, and can readily hide between the petals of flowers, into which it securely glides from one side of a plant to the other; in the absence of such hiding places as are furnished by flowers, it finds security among the leaves, or flies, which it readily does. Clean culture will help much to get rid of them. It would be well to burn up all the material on the plat of ground they infest badly during cold weather, as in it they find winter quarters, and are themselves sluggish.

That this insect should feed on the ripening fruit of the strawberry is not at all strange; but it is not by biting the fruit that it destroys it, but by pumping from it its juice. We should not at all be astonished to learn of its preying on raspberries, blackberries, and even currants and grapes in a similar manner, although it is more likely to disturb the young, tender growth more than fruits.

The Toad.—His Usefulness.

Cassel's Magazine thus enumerates some of the peculiarities of the toad:

"Not only are toads harmless, but they are absolutely and directly useful to us, perambulating fields and gardens at night, and devouring vast quantities of insects which could never be destroyed by the hand of man. The mode in which a toad takes its prey is very curious. Its singularly beautiful eye is as quick as it is bright, and if within the range of its vision an insect or a grub happens to move, the toad is sure to see it, and nearly certain to catch it. First, the toad holds its head as high as possible, so as to make sure of its prey, and then crawls slowly toward it, preferring to get under it if possible. When it is nearly within reach it gazes intently at the insect, its mouth being brought nearer and nearer. Something pink then flashes from its mouth, and the insect vanishes as if by magic. The pink flash is the tongue of the toad, which is formed in a rather curious way. The base of the tongue is fixed close to the front of the lower jaw, and is long and tapering, the tip pointing down the throat when it is at rest. When however, it is used for catching prey, it is thrown out with a sort of 'flick,' and the tip, which is covered with a glutinous secretion, adheres to the insect and conveys it down the toad's throat before the prey has time to make an effort to escape. When the toad swallows its prey, it does it with a mighty effort, during which the eyes almost disappear, the size of the insect having little to do with the most marvelous vehemence of the toad's demonstration. When a large beetle is

swallowed it does struggle but too late, and for some time its struggles may be seen through the thin and ribless sides of its capturer: the toad sitting the while in perfect composure, not in the least affected by the scratchings and kickings that are going on in its interior. Indeed, the stomach of the toad is as devoid of feeling as if it were of iron. Moreover, the toad not only cares nothing for the scratchings and kickings of a large beetle, but is equally indifferent to the stings of wasps, bees and insects similarly armed with venomous weapons, and will eat them with marvellous appetite, as if the stinging acted as a sort of gentle aid to the digestion, like cayenne pepper with cucumber.

Notes on Bee Culture.

Difficulty with Top Boxes.

By W. C. Condit, Howard Springs, Tenn.

Ed. Pomologist and Gardener:—The difficulty frequently spoken of in bee culture, viz: that of inducing the bees to work in boxes on the top of a hive, is one I long ago experienced, and believe to be a very common one in the use of such hives as the Langstroth, American, and others which have "supers" for obtaining surplus. Side boxes, if placed near the brood, I believe to be preferable; but a still better method of securing surplus honey, is by the use of such hives as I recently described in the Pomologist. The honey can, by the use of such a hive, be taken either in the comb, or it can be extracted and the comb returned to be re-filled — the latter I think the best and most profitable method. As to why the bees will not always work in boxes, I suppose it to be their reluctance to build comb at any considerable distance from their brood. Rather than thus work at a distance from the brood, they will often continue to store their honey din the brood cells, as the young bees hatch out, encroaching more and more upon the domains of the queen, till her field of labor is very limited, or entirely used up. The consequence will be, a hive full of honey, and but few bees; and of course, in the succeeding winter the colony is likely to perish.

The only remedy for such a state as things is to open out a space for the industrious little insect to work *in the center of her nest.* This can easily be done in the hive I use, by placing one or more empty frames between full ones, in the center of the brood nest. This will not only give them room, but will induce extra efforts to fill up, as it is undesirable to have a vacant space between brood combs. I think comb will be made twice as fast in such a place as in a box on top. Of course, judgment must be exercised as to the time of inserting empty frames, and as to the number to put in. It will not do to give too much space, nor to insert when the weather is cold. A little at a time, in warm, working weather, is the true plan, never putting two empty frames side by side.

Do Bees Destroy Grapes?

I have recently seen several complaints in the agricultural and other papers, that bees were destroying the grapes. I have also heard it very confidently asserted by some of my horticultural acquaintances that their grapes — especially Delawares — were being thus destroyed.

I am compelled to doubt all these statements; and believe that careful observation will show that bees never attack grapes which have not had their surfaces broken by some previous accident or depredator; and that they simply utilize by converting into honey the juice which would otherwise be wholly lost.

Appearances are often against the bees; and at one time I also thought they were the destroyers; but subsequent observation and experiment convinced me that birds are the real offenders in all cases.

The robin, cat bird, blue jay and Baltimore oriole are all grape and small fruit eaters; but the oriole is the greatest rascal of the lot, and the robin next. As soon as the grapes commence ripening, the oriole begins his operations. He pecks into the ripest and perhaps sucks out a little juice; then as if instigated by curiosity to see if other berries of the bunch are not more to his taste — or perhaps possessed by the spirit of evil — he attacks grape after grape, and cluster after cluster, till all he can conveniently reach are punctured and partially destroyed, while he apparently eats scarcely any portion of them. Very large quantities of grapes are thus ruined by these pestilent little vandals, often before their agency in the matter is suspected. They usually work very early in the morning or when no person is around, for they are as shy and cautious as they are villainous.

The robin is more open and above board in his depredations, and will eat your grapes with a saucy and defiant chirp in your very face. He is more honest, however, for he actually eats the greater part of the grapes which he attacks, and is only a formidable enemy when reinforced by numbers of his fellows. Nothing short of frequent admonitions in the shape of powder and shot seems to affect him. After a score or two are killed, the remainder take the hint that their presence is undesirable, and for a time leave the neighborhood.

My principal reason for belief that bees only attack grapes that have been previously injured by other insects or birds, is this: Whenever I protect-

ed grapes, as I often have done those that I specially desire to preserve, by covering them with coarse netting, bees have never disturbed them, although they had as free access as before. And bunches which were partially destroyed before being covered with the netting, have had the punctured berries afterward eaten by the bees; all the rest remaining untouched till fully matured—sometimes for weeks after all unprotected bunches were entirely destroyed.—*Geo. W. Campbell, in Ohio Farmer.*

Reasons for going into the Bee Business.

The Practical *Planter* under the above heading, rather facetiously undertakes to encourage bee business at the South, in the following cogent reasoning:

1st. *It is as certain as any other rural pursuit.* Without rain the farmer can raise no crop. If there is no honey secreted in flowers the bees can gather none, but if the flowers yield honey my bees will be sure to gather it.

2d. *More profitable according to the amount of money invested than any other farm stock,* because it takes less labor to keep them, and the investment yields from one to three hundred per cent. per annum on the capital.

3d. *They cannot be enticed away, and with proper management, hardly ever leave of their own accord.* Can this be said of any other class of laborers?

4th. *An enterprising person can accomplish more, alone and unaided, at this than at any other rural pursuit.* Almost all of the operations of the farm have to be gone over again every year, without great additional gain; whereas the bee-keeper can multiply his stocks three or four fold, thus more than doubling his working force, while the additional labor of caring for his bees is not much increased, because the practical bee man learns every year, and can soon attend to fifty or one hundred colonies in the same time that it first took him to attend to a dozen.

5th. *Less liable to depredations and thefts than any other farm stock.* Every stock raiser knows how liable horse flesh is to stray off, and how accommodating some people are to take it up, and, in their anxiety to carry it home, miss the right road, and neither they nor the horse are ever heard from afterwards; and what a perverse habit fat pigs have about the annual negro camp-meeting times, of suddenly "coming up missing;" and your young pet cow, evidently having heard their revival song—"I can't stay here any longer"—becomes inspired with the idea, and away she goes. But they don't take our bees.

6th. The honey crop is secured with less labor, and after storing away is subject to less loss than any other crop.

Worms in Combs.

A correspondent in a late number of the American *Journal*, said that some of his bees, after gnawing off the caps of the cells, were unable to come out; and he wants to know what is the matter. One word will tell—"WORMS."

I noticed some of mine in the same fix, soon after reading that article, and on pulling them out I found, as I expected, a small worm-hole near the bottom of the cell. I had before noticed that those bees which could not get out were in lines, and after pulling out a few I found a small worm. They (the worms) work their passage from one cell to another, perhaps two-thirds of the way towards the centre of the comb, eating the wax, bees' wings and legs, and leaving a fine web behind, which holds the bees in the comb.

I supposed they were not the larvæ of the ordinary bee moth, as I have generally found these near the surface of the comb. But I put some of these combs containing these small worms in a glass jar, and in due time had from fifteen to eighteen fine large moths of the ordinary kind. My conclusion is that these worms, while small, work near the septum of the comb, and when grown about half an inch long they work next to the surface.—*J. L. Hubbard, in American Bee Journal.*

HOW TO SMOKE BEES.—The effect of smoke on bees is wonderful. In a few moments they are rendered stupid and harmless. To do it effectually many suppose that tobacco must be used. A much better way is to make a roll of old cotton rags an inch or two thick. Light one end of the roll and blow the smoke into the hive; or otherwise so place it as to reach the bees, whether inside or outside the hive.

HONEY DEW.—A German observer says that honey dew is the exudation of the saccharine portion of the juices of plants which has by some means been diverted from the proper channel of excretion, which is the blossom of the plant.

WEIGHT OF HONEY IN A HIVE.—A bee-keeper must not judge of the state of his hive in the spring by its weight alone, because at that time the number of young bees and larvæ in it weigh heavy, and may impose on the unwary for real wealth, when the stock of honey is nearly exhausted.

GROWTH OF A ROSE SLIP.—The Los Angelos *News* tells of a rose slip about one foot in length, that in one year from planting made, in the aggregate, a growth of fifty feet. Thinks the story will appear incredible to outsiders. It might, were any thing impossible in California.

Miscellaneous.

Meeting of the American Pomological Society.

The American Pomological Society met at Richmond, Va., Sept. 6th, and held its thirteenth biennial session of three days. Delegates and members were present from all parts of this great Empire of States and Territories. It was the first meeting of the Society held in a Southern State, and most nobly did the Old Dominion and the whole South respond to the call for this meeting on "Southern soil." Visitors from the North and from the West, were welcomed to Richmond with the utmost cordiality and attention. It was a meeting where all hearts beat in unison — for the promotion of one great national interest, and it was more than pleasant to see men from all sections of the country, who, in the late unfortunate strife, represented the two extremes, meet together in the interest of one common cause, and to extend to one another the right hand of fellowship and good will. One such meeting will do more towards the restoration of good feeling, and to harmonize social relations between the people of the two sections, than all the political reconstruction tinkering Congress has ever done, or ever will do.

The Richmond *Enquirer*, in its words of welcome, said:

"The gentlemen who are here from other States, we cordially welcome to Richmond. We trust that such an interchange of courtesies and opinions as must necessarily follow upon such a convention, will contribute something in the way of a better understanding between the sections. We hope that every effort will be made to make their sojourn among us agreeable. They are the flowers (as well as the fruit) of the land. They are the quiet, earnest, intelligent element of the country. If there is any business in the world that is without guile, and that contributes to the comfort of mankind, it surely must be that of the fruit-grower."

In the first place, on Tuesday morning carriages were provided, and visitors invited by the Reception Committee to an excursion about the city and its suburbs. Various points of interest were visited during the forenoon, among which were the beautiful cemetery grounds, the public squares, the little ancient church building in which Patrick Henry made his maiden speeches, and the old burial place surrounding it; and at a distance the locality was pointed out where it is said Pocahontas saved the life of Captain John Smith — and, by the way, a most fortunate circumstance for the Smith family.

On Wednesday morning the Society was received in a body by the Mayor of the city, and in a brief address, closing with the following fraternal words, cordially and formally welcomed to Richmond:

"When the late unhappy strife was ended, the first act of reconstruction was passed by nature. Our brother-blood was still boiling in hostile veins; the clenched hand was still unrelaxed, and the passions of war were still rife, when from a thousand skies and hill-sides, and athwart a thousand plains came the generous sun-light, the gentle rain, and the tempering winds, filling up the gaping rifle-pits, battering down the sharp escarpements of frowning forts, blotting out with waving grain the fierce scar of shot and shell, crowning battlements with fragrant flowers, and weaving a beautiful carpet of green over the scenes and sites of war's worst devastations. May it be your happy fortune and high privilege, gentlemen, you who labor with nature in so many pleasant and profitable fields, to lend her a helping hand and a willing heart in this, the noblest field of all."

To the address of welcome President Wilder made a most happy response, and among other good words said:

"We are happy to be here in the capital of the Old Dominion, a State so distinguished for the production of illustrious men — of Washington, Jefferson, Madison, Monroe, Harrison and Tyler — all of whom have filled the highest station in the gift of the people; John Marshall, Patrick Henry, Henry Clay, names that will ever constitute a galaxy of talent to fill the brightest page in the annals of American history. We come from different and widely distant sections of our country.

I came from the cold and sterile soil of New England, where we have not the luxuriant soil of the West, nor the warm, genial and sunny clime of the South; but, sir, we have hearts as warm as yours; and although granite and ice enter largely into our exports, they are no evidence of the hardness of our hearts, or the coldness of our affections. I assure you, sir, we are most happy to be here and to meet our Southern brethren on Southern soil."

AN EXCURSION.

On behalf of the City Council and the Committee of of Reception, the Mayor invited the Society to an excursion by steamer at 3 P. M., down the James River, to take a look at Butler's famous Dutch Gap and other objects of interest. The invitation was accepted, and at the appointed hour a large party passed down the river about fifteen miles, went through the gap, and returned around the island made by the cut off. The cut, or canal, is about ten rods in length through a high neck or ridge of land composed of clay and sand, and at the time of sufficient width and depth of water to admit the passage of light draft steamers. The General Government has now in hand the job that Butler failed on. Two powerful dredging machines are at work, the object being to make a channel through which the largest class vessels navigating the river may pass, thereby saving some ten miles of navigation around this bow of the river.

THE SHOW OF FRUIT.

The show of fruit was very fine — unquestionably the finest ever made in any country. Clusters of

grapes from California that weighed from five to seven pounds; Duchess pears from the orchards of Old Virginia measuring fifteen and a half inches in circumference; and Vicar of Winkfields six to seven inches in length, with peaches from Nebraska ten and a half inches around, were a few of the mammoth fruits on exhibition. Then came the large collections, a few only of which we have space to mention. The honored President of the Society, Marshall P. Wilder, of Massachusetts, had on the tables 232 varieties of the pear; Ellwanger & Barry of Rochester, N. Y., 157 varieties; California 41 varieties; from the Potomac Fruit Growers' Association, District of Columbia, 54 varieties; from the Experimental Gardens, Washington, by the Superintendent, Mr. Saunders, 34 varieties; from Maryland, 36 varieties, with many other collections from Kansas, Nebraska and other sections of the country.

Among the large collections of apples, we have from Kansas 250 varieties, about 60 of which were from the orchard of the Associate Editor of the Pomologist and Gardener, Dr. J. Stayman; from Southern Illinois 200 varieties; from Central Iowa 118 varieties; from Nebraska 134; from Richmond, Va., 193; from Rockingham County, Va., 110; from California a large collection; from Minnesota 60 varieties; from Michigan 101 varieties; with smaller collections from all quarters.

Of grapes, the largest collection was 40 varieties of hybrids from South Carolina, by Dr. Wiley, and upon which he presented to the Society an elaborate and interesting report, which will appear in the transactions of the Society. Smaller collections were also presented from many other States,

Michigan made a splendid show of peaches, and of Delaware grapes. Of both these fruits we have never before seen finer specimens. As for quality and beauty, we believe Michigan can beat the world on peaches and Delaware grapes.

Such is a mere outline of this great national gathering of fruits.

TIME OF NEXT BIENNIAL MEETING.

President Wilder extended an invitation to meet him in Boston in 1873, and there celebrate the Quarter Centennial year of the history of the Society, which invitation was unanimously accepted.

CLOSED WITH A BANQUET.

A very pleasant finale to this meeting of the Society, was in a banquet given by the Virginia Pomological Society. The tables were sumptuously spread, and the occasion enlivened with music and good words.

President Allen, of the Virginia Pomological Society, presided, and gave as the first sentiment:

"The American Pomological Society—Marshalled by a Wilder, it has grown into a vigorous manhood; may its future years be as glorious as its past has been auspicious."

President Wilder, in his usual happy vein of thought, responded briefly to the compliment. He returned thanks for the cordial reception the members of the American Pomological Society had met with, and rejoiced to be engaged in the same cause which had been so earnestly commended by Washington. He claimed sympathy with his Southern friends. He was for the first time on Southern soil, and having experienced the hospitality of this people, he could almost wish he had been born on Southern soil. He bore the names of two illustrious Southerners, Marshall and Pinckney, the latter of whom originated the memorable expression, "Millions for defence; not one cent for tribute." He would always hold in grateful remembrance this visit to the capital of the Old Dominion.

That eccentric, generous, whole-souled Floridian, Col. L. A. Hardee, an ex-officer in the Confederate service, but who has "beat the sword into the plowshare, and the spear into the pruning hook," made some pertinent remarks, in the course of which he said:

"I love the sunny South, I love her verdant plains, I love her silvery lakes, I love her sparkling streams and her noble rivers. I love the Mississippi, as she courses through the South, but I love her none the less because she heads far away in the Northwest, where the buffalo and the Indian drink of her waters. I love the little grey jacket, and I adore those old horn buttons; I have no love for the blue jacket, nor for its glittering brass. I have seen the youths of the North and the youths of the South lying side by side in a Southern grave. I have looked again, and the blue and the grey have blended into dust, so I could no longer tell which was the blue or which was the grey."

A WORD ABOUT RICHMOND.

Richmond is pleasantly situated on elevated ground at the head of navigation on the James river, and is made attractive by the combination of nature and art. In the make up of this city of trees, gardens, fruits and flowers, "the eternal fitness of things" has been duly regarded, for nature, wealth and taste seem to have gone hand in hand in all directions. Nor did we pass through any town or city on the trip that showed more life and activity. We predict for Richmond a bright and prosperous future.

In the Capitol park stands the most imposing and impressive monumental structure in the land. It is built of granite, the base octagon, with a heavy shaft rising high up from the center and surmounted with an equestrian statue of Washington. Below, upon each angle of the base, stands one of Virginia's distinguished sons — Jefferson, Marshall, Henry, Lewis, and others. All the figures are of bronze, in the costume of their time, and of colossal size.

OFFICERS ELECTED.

President.—Hon. Marshall P. Wilder, of Mass.
Treasurer.—Thos. P. James, Cambridge, Mass.
Secretary.—F. R. Elliott, of Cleveland, Ohio.
Vice-Presidents.—C. C. Langdon, Ala.
S. J. Matthews, Ark.
Warren Foote, Arizona.
J. S. Curtiss, Cal.
A. C. Meeker, Colorado.
F. Throwbridge, Con.
Edward Tatnall, Sr., Del.
W. Saunders, D. C.
Lucius J. Hardee, Fla.
Wm. Schely, Ga.
Arthur Bryant, Sr. Ill.
G. D. Nolson, Ind.
James Smith, Iowa.
J. A. Stayman, Kan.
J. S. Downer, Ky.
Richard H. Day, La.
S. L. Gordale, Me.
W. D. Brackenridge, Md.
C. M. Hovey, Mass.
Samuel Jackson, Mich.
D. A. Robertson, Min.
W. B. Wilkes, Miss.
C. W. Spaulding, Miss.
Nicholas Waugh, Mass.
R. W. Furnas, Neb.
Charles Downing, N. Y.
Fred. Smith, N. H.
William Parry, N. J.
Dr. Ruyther, New Mex.
Walter L. Steele, N. C.
R. G. Haliburton, N. S.
George W. Campbell, O.
Charles Arnold, Ont.
Francis Simeon, Oregon.
Robert Beust, Sr., Pa.
Hugh Allen, Quebec.
Silas Moore, R. I.
A. P. Wylie, S. C.
Wm. Heaver, Tenn.
N. G. Mills, Texas.
J. E. Johnson, Utah.
Richard Bradley, Ver.
G. F. B. Leighton, Va.
Dr. Strother, West Va.
J. C. Plumb, Wis.
Judge Carter, Wyoming.

EXECUTIVE COMMITTEE.

J. E. Mitchell, Pa.
George Shurtur, N. Y.
J. S. C. Hyde, Mass.
R. W. Furnas, Neb.
P. J. Berckman, Ga.

STANDING COMMITTEES.

General Fruit Committee.

P. Barry, chairman, Rochester, N. Y.
R. R. Hundley, Ala.
Dr. Richard Thurston, Ark.
Dr. John Strinlyel, Cal.
T. S. Gold, Conn.
Edward Tatnall, Del.
John Saul, D. C.
W. S. Littlefield, Fla.
P. J. Berckman, Ga.
O. B. Galusha, Ill.
Dr. Allen Furnas, Ind.
Mark Miller, Iowa.
W. M. Howsley, Kan.
Z. R. Higgins, Ky.
S. L. Goodale, Me.
Robert Manning, Mass.
A. S. Lendeman, Mich.
P. A. Jewell, Minn.
Wm. Muir, Miss.
J. H. Masters, Neb.
George W. Ellwanger, N. Y.
John Clapp, N. H.
A. S. Fuller, N. J.
Joshua Lindsley, N. C.
Robert W. Starr, N. S.
J. A. Warden, O.
D. W. Beadle, Ontario.
J. S Houghton, Pa.
J. S Childs, R. I.
D. H Jacques, S. C.
Fred. H. French, Tenn.
A. S. Lipscomb, Texas.
Bartlett Bryant, Vt.
Franklin Davis, Va.
O. S. Willey, Wis.

Committee on Foreign Fruits.

George Ellwanger, N. Y.
C. M. Hovey, Mass.
Parker Earle, Ill.
Dr. John A. Warder, O.
Edwin Hoyt, Conn.
J. E. Mitchell, Pa.
R. R. Henley, Ala.

SPECIAL PREMIUMS.

Reports of Committees on Awards. The Committee on Special Premiums for the best collection of apples, peaches, pears, and grapes, reported that the only entry meeting the requirements of this premium is that from Nebraska, and respectfully recommend the premium of $100, offered by the Virginia Agricultural Society.

Committee—M. Saunders, M. B. Smith, P. J. Berckman.

On the announcement of the award Col. Furnas, one of the delegates on behalf of the Nebraska State Horticultural Society, donated to the American Pomological Society the premium which had been awarded.

For the best collection of pears $50 to Ellwanger & Barry, Rochester, N. Y.

The Committee on Special Premiums for the largest and best collection of apples of not less than fifty varieties and not less than four specimens of each variety, award the premium of $50, to the collection of 118 varieties presented from Central Iowa.

Committee—Charles Downing, J. S. Downer, P. T. Quinn.

On this award, Mark Miller, delegate from Iowa, remarked: "Iowa is not here with her fruit for dollars and cents. She is here to show to the world that she has the capacity to raise fruit—to raise as good apples and many other fruits as can be produced in the world," and concluded by donating in the name of the Iowa State Horticultural Society to the American Pomological Society, the award made.

Committee on Gratuities.—The committee reported as follows:

1. The premium of $5, offered by W. S. Butt, of Norfolk, is awarded to Dr. A. P. Wylie, of South Carolina, for collection of hybrid grapes.

2. The premium of $5, offered by Randolph & English, Richmond, is awarded to R. W. Furnas, of Nebraska, for his collection of seedling peaches.

3. The premium of $20, offered by the Southern Fertilizing Company, of Richmond, Va., is equally divided and awarded to the California collection of fruits and to Dollins & Bro., of Albemarle county, Va.. for their collection of apples.

4. The premium of $20, or a medal, offered by G. F. B. Leighton, of Norfolk, Va., is awarded to the Kansas collection of fruits.

Committee—Jas. D Masters, H. B. Ellwanger, D. W. Herstine.

All special premiums for which no entries were found, meeting the requirements of premiums, were donated to the Society.

Mr. Whitehead offered the following preamble and resolutions, which were adopted:

Whereas, it is desirable that the premiums of the Society should be given in the form of medals, and whereas, some of the premiums generously contributed by the friends of the Society, have not been awarded, it is hereby ordered that all such moneys and such other sums as may be acquired by donation, for the purdose of procuring a die for a medal of the Society.

It was also moved that the likeness of the President of the Society be placed upon the medal.

President Wilder acknowledged his thanks for the compliment.

NATIVE FRUITS.

The Committee on Native Fruits respectfully report that the following new varieties on exhibition have been examined by them:

APPLES.

By J. Ravenscraft Jones, Brunswick county, Va., Mason's Stranger, unripe, examined in February by one member of the committee, who thinks highly of it.

Pilot—Unripe.

Eight unnamed seedlings—Unripe.

Dinwiddie—From W. W. Dinwiddie, Albemarle county, Va.

Brown's Seedlings—F. Davis & Co., Rockbridge county, Va.

Sharp—Chesterfield county, Va.; summer apple; tender, juicy, good.

A Seedling—W. N. Dinwiddie, Albemarle county, Va.; fair-looking, unripe.

Seedlings—H. B. Jones, Rockbridge county; some fair-looking, but all unripe.

Seedling—G. N. Purvis, Nelson county, Va.; fair looking, unripe.

Via—By Dollins & Brother, Albemarle county, Va.; good. Also, by the same, fine.

Yancy Prize—Good to very good.

Matilde—Good to very good.

Ragland—Very good.

Baker—By Parker Earle, Cobden, Ill.

Red Sweet Pippin—By Parker Earle, Cobden, Illinois.

Nebraska Seedling, No. 1—Col. Furnas.

Nemaha—Brownsville county; "good."

Nebraska Seedling, No. 2—Col. Furnas; scarcely good.

Nebraskian—J. H. Masters, Nebraska City; good.

Garden Beauty—By P. A. Jewell, Minneapolis, Minn.; good.

Forest Queen—By the same; good.

Kansas Queen—Raised by Batkinson, and exhibited by Dr. Stayman, Leavenworth; very handsome; quality good; over-ripe; promising well.

Kansas Belleflower—Dr. Stayman; very good.

Kansas Pippin—Dr. Stayman.

Whitescarver—J. Saul, from Rappahannock co., Virginia.

PEARS.

Twenty-four seedlings from F. & L. Clapp, Boston, Mass., of promising character but flavor impaired by the packing material.

PEACHES.

Five seedling clings from G. W. Purvis, Nelson county, Va. Not ripe.

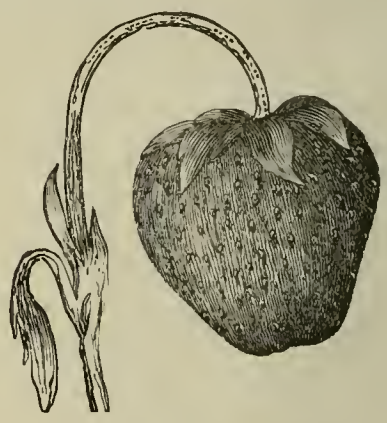
A large quantity seedlings from Mr. Linderman, Grand Rapids, Michigan, but no number or names by which any one can be referred to.

☞An eastern market gardener claims that the time he has bestowed upon his garden this year will pay him $20 a day.

Notes and Gleanings.

Seedling Strawberries.

Some of our cotemporaries and their correspondents are doing some big talk over new seedling strawberries. We are enabled to put in an appearance in that direction also. Mrs. F. R. West, of this city, who gives her personal attention to one of the best kept fruit gardens in the State, has two or three seedling strawberries that are very promising. We are not one of those who jump at conclusions — to lay hands hastily on any new fruit, or any other new thing, but will here say, that we were never more favorably impressed with a new fruit than with two of Mrs. West's new seedling strawberries. They are from a collection of fifteen plants, raised from the seed of a single berry four years ago.



The accompanying engraving fairly represents the best one of these two berries, except it should be a little broader at the apex. The berries are flattened, very much like Triumphe de Gand. Surface smooth, glossy, rich, deep red; flesh white, of very fine texture and flavor; plant perfectly hardy with no winter protection; a rampant grower; foliage large and luxuriant; fruit stems very long and stout—ripening their fruit high up from the ground, clean and nice; season same as Wilson.

The other berry is rather larger, but not so well flavored, of a pale red (much like Downer's Prolific in color and shape). We think, however, for market, it will prove more valuable than the other, from the fact of its coming in after other sorts are out of season. This last season it afforded good picking for a week or ten days after Wilson had entirely disappeared. We look with much interest for Mrs. West's experience with these berries another season.

The Goff, Kentucky and Warfield.

While among the apples we would acknowledge from Suel Foster, of Muscatine, specimens of the *Warfield*, *Goff*, *Kentucky* and *Montreal Beauty*. These were received as we were making up the collection to take to Richmond, and we put in the requisite number to make one plate of Warfields. We venture to say that every one who came in sight of the table noticed the Warfield.

But the *Goff*. Oh! What an intolerable sour thing. Why! the very recollection of it puts our teeth on edge. "Perfectly awful!" Pray don't afflict us with any more "Goffs."

But the *Kentucky*. That's all right. We have just cut it to-day, (September 20th) and find it *better* than good. Will say in short, that we know of no apple in season at this time better, if so good. We have made a drawing of it for publication. Will friend Foster tell us what he knows about the tree, fruit, &c.? Send us all you please of the Kentuckys and Warfields.

The Montreal *Beauty*, a *crab*, is very handsome, and the first we have ever seen.

Fruit in Boston Market.—The Commercial Bulletin of a late date says: "Only a few week ago apples were one of the most expensive luxuries in the fruit line in this market, and a really good article of eating readily commanded $8@10 a bbl. But, presto, change! and they are now a drug selling at very low prices. Receipts have been large from Mich, Mo. and Ohio, and a nice barrel of apples can now be bought for $2@3 a bbl. The apple crop in New England will not amount to much this year, but the supply from other sections will be about up to the average of other years.

Keeping Grapes.—The Grass Valley (Cal.) Union says: "This question has often been asked, and has been answered both affirmatively and negatively by those who have experimented in that way. Yesterday Mr. Charles Barker, of this place, exhibited a sample of grapes which he has kept through the winter in all their freshness of taste and plumpness of size by a very simple process. Mr. Barker packed up a barrel of Catawba grapes in sawdust last fall, and yesterday the barrel of grapes was opened, and the fruit was splendid, as we have stated.

Big Apple Tree. At a late meeting of the Atlanta, Ga., Pomoligical Society, a "yellow June apple tree was reported from Palmetto, Ga., in the orchard of Mr. Simms, of that place, the branches of which covered a space of 150 feet in circumference near the ground. The tree yielded enormously."

Snake Bites.—Well, what has snake bites to do with pomology. Not much to be sure, but the following prescription is so simple, its effects so well authenticated, that we cannot forego the temptation of passing it along from the Knoxville *Democrat*. The editor is cognizant of cases cured, and declares it a perfect remedy in all cases if applied in reasonable season:

One tablespoonful each of salt and gunpowder, mix with the yellow of an egg into a plaster and apply—keep renewing as it falls off which it will do as long as poison remains.

A new Way to Dry Peaches.—A New Jersey fruit grower gives the following method for skinning and drying peaches: "Never pare peaches to dry. Let them get mellow enough to be in good eating condition; put them in boiling water for a moment or two, and the skin will come off like a charm. Let them be in the water long enough and no longer. The gain is at least six fold—saving time in removing the skin; great saving of the peach; part of the peach is saved, the best part; less time to stone the peaches; less time to dry them and better when dried.

Extremes in the Fruit Market.—The Horticulturist says: "On June 27th, there were found in New York, strawberries, black and red raspberries, blackberries, whortleberries, cherries, currants, peaches, and *ripe apples*, all for sale side by side on the same market stand. When it is known that apples are four months later than strawberries, it is something of a curiosity to see the extremes thus meet at this early date of the season. The strawberries came from Connecticut and the apples from South Carolina, while the other fruits were gathered from all quarters between.

How to Keep Cider Sweet. There are many methods recommended for keeping cider sweet, but we have never seen anything so simple as that recommended by a correspondent of the Journal of the Farm. The cider after it comes from the press is allowed to stand until the pomace settles. It is then put into a clean vessel over a fire and brought to a boil—in the mean time skimming off the scum as it rises. It is then put into small kegs or bottles and tightly corked and sealed. By this process the writer has excellent sweet cider, not merely for the winter, but for years.

Prolific Cherry.—R. Hazlett, of Hillside, Mich., has in his garden a cherry tree of the Yellow Spanish variety, which yielded during the past season 225 quarts of cherries. Being very early and large, they sold for twenty cents per quart, making a return of $45 for a single tree.

FRUIT NOTES FROM BENTON COUNTY.—I have had a fine crop of Iona, Concord and Clinton grapes. Concord vines planted two years ago last spring with nearly two hundred clusters.

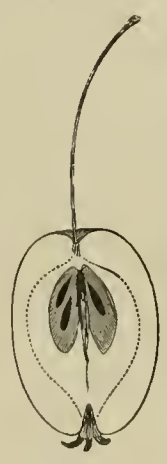
My Israellas, (which I think are as good as Black Hamburg), Eumelans, Ives and Delawares, were all killed in the winter of 1870. The blight on apple trees is very severe; my Tallman sweets were first affected, and I think sweet apple trees are affected worse than sour.

I think your correspondent B. C. from Adel, is mistaken in regard to the cause of the blight, for all my crabs were affected except Soulard. I had some Summer Queens grafted two years ago into some Siberian stocks, and they are killed below the graft. There is a mystery about this blight. Is it caused by some *varmint biting or stinging* the ends of the twigs and poisoning the sap?

I tried your mode of grafting the grape recommended in the POMOLOGIST. I cleft grafted some Ionas into some wild stocks last spring, and they grew about *eight feet* in four weeks. I then pinched off the ends of the vines.

Vinton, Benton Co., Iowa. S. D. REDFIELD,

THE PEWAUKEE.—We have received from Mr. Geo. P. Peffer, Pewaukee, Wis., specimens of his seedling—the Pewaukee Apple, illustrated and described on another page. Also six varieties of Siberian crabs, one of which (here illustrated) is a novelty. Fruit oblong; cavity slight; basin none; stem very long and slender; calyx sepals four in number, set regular and nearly a half inch in length. Skin rich yellow with blush. Mr. Peffer writes that he has this season fruited some 65 varieties of seedling Siberian Crabs. The Pewaukee is a very heavy apple, is beautifully colored up and would be a very handsome apple, but for its tapering base, shallow, narrow cavity and insignificant stem. But all these are of minor importance. Altogether it is a fine looking apple.



MARENGO SIBERIAN CRABS. — Herendeen & Jones, of Geneva, N. Y. send us specimens of the Marengo Siberian apples—representing the whole group under this name. Some of them are in season and some are not. Those in season, we find on trial very pleasant—in fact *very* good. Flesh very tender, juicy and rich. In appearance the fruit is very handsome.

APPPLES FROM MR. L. D. HEWITT.—Mr. L. D. Hewitt of Redfield, will accept our thanks for a box of apples made up of White Winter Pearmain, Swaar, Dyer, Kirkbridge White, Lowell, Coles' Quince, Early Pennock and Strawberry. They were received previous to going to the Pomological meeting at Richmond, and from which some selections were made for the collection taken. Some of the finest apples shown at the annual meetings of our State Horticultural Society have come from Mr. H.'s orchard. His show of Swaar and White Winter Pairmain has been extra fine.

THE CALIFORNIA ANT-EATING WOODPECKER.—A curious observer states that the California ant-eating woodpecker, in storing its provisions for winter use, digs a small round hole in the bark of the pine or oak, and into these inserts an acorn so tightly wedged in as to be with difficulty extracted. The bark of the pine tree, when thus filled presents at a short distance the appearance of being studded with brass headed nails. Stowed away in large quantities in this manner, the acorns not only supply the wants of the woodpecker, but the squirrels, mice and jays avail themselves likewise of the fruits of provident labor.

BEATRICE PEACH.—The American Agriculturist has received from Mr. S. G. Bilgen, Littleton, Halifax county, N. C., specimens of the Beatrice peach, a seedling raised by Thomas Rivers, of Sawbridgeworth England. Like all early peaches, it is small, but of high color, very fragrant, and of good quality for a very early variety. Mr. Bilgin finds it at least twenty days earlier than Hale's Early, and possessed of superior shipping qualities.

POHA BERRIES FROM THE TROPICS.—E. I. Hooper in a communication to the *California Horticulturist*, metions the exhibition at the Mechanics' Fair in San Francisco of some poha berries, "esteemed one of the greatest luxuries of the tropics, resembling the ground cherry, but as superior to it as the apple to the crab. It is unsurpassed by any fruit for richness and delicacy of flavor for pies, jellies, jams, preserves, etc.

WINE FROM "No. 13."—Prof. James Mathews, of the State Agricultural college, has our thanks for a bottle of wine made from his "No. 13" grape. It was received some months ago and should have been acknowledged ere this. We do not profess to know much about wine, but so far as our judgment goes this "No. 13" is good enough.

TOO MUCH PEACH.—The Ottawa (Kansas) Herald says the only complaint they have to make of the peach crop is that peaches are so abundant they fail to receive old-time prices.

APPLES FROM DR. JAMES WEED.—Friend Weed of Muscatine, has our thanks for a a box of the Porter. They were large and fine. The Porter is a special favorite of the Dr.'s, and he grows it to great perfection. Mr. James Smith after many years' experience has come to regard the Porter with great favor. The Porter should be more generally grown and better known than it has been.

ROOTS AND HERBS. In Boston are three wholesale dealers in roots and herbs, exclusively, who do a business of over $200,000. These roots come mostly from North Carolina and Tennessee, where they are gathered by the poor whites and freedmen from the mountains, and traded to the stores in the villages, for the necessaries of life. They are then sent forward by these "middle men" to the great markets of the country, and in New York and Boston about 125 tons of the different varieties are annually received.

VIRGINIA PEARS.—Of the last annual fair of the Massachusetts Horticultural Society, held a few days since, a Boston paper says: "The pear show was good. The most notable were 6 Duchesse D'Angouleme, grown by G. F. B. Leighton, of Norfolk, Va., weighing severally 20¾ ozs., 24, 23½, 25¾, 22¾, 22¾, and 23¼ ozs.; aggregate 140 ozs. or 8¾ lbs."

COLUSA MELONS.—The Marysville Appeal says that six watermelons grown in Colusa county were recently weighed and aggregated as follows:—54, 57, 57, 58, 60, 61. The *Appeal* thinks Colusa is entitled to the banner,

PRUNING IN SEPTEMBER.—The London Gardener's Chronicle states that vines in vineries, pruned in September while the leaves are on, will have the succeeding crop ripen fifteen to twenty days earlier than other vines pruned in November, all other circumstances being equal.

Business Cards.

ORNAMENTAL STOCK. Robert Scott, *La Porte, Ind.*, Propagator of and dealer in Fruit, Ornamental and Floral Nursery Stock.
No. 6, tf.

BLAIR BROS., General Nursery Business. Lees Summit, Jackson County, Missouri.

BUDD, J. L., General Nursery; Evergreens from seed a specialty. Shellsburg, Iowa.

BRYANT, A., JR., Nursery; specialty, young Evergreens, Forest Trees, Grapes, &c. Princeton, Ill.

BOYNTON, J. S., General Nursery; specialties, Evergreens and Apples; Send for prices. Stryker, Williams Co., O.

BLAIR BROS., Lees Summit Nurseries, Lees Summit, Mo.

BRANSON, ABNER, General Nursery stock, West Branch, Cedar county, Iowa.

CALDWELL, W. B. Paris, Illinois, Nurseryman and Sweet Potato Culturist.

CURTIS, D. S., Edgar Nursery; General Nursery Stock and Hedge Plants, Paris, Ill.

CAMPBELL, GEORGE W., Grape Vines, Small Fruits, and Greenhouse Plants, Delaware, Ohio.

CONDIT, W. C., Howard Springs, Tenn. Specialties: Italian Bees, improved hives, Eumelean Grapes, and Wild Goose Plums. The "Nan Young Peach" a specialty.

DART, E. H. S., Nurseryman. Hardy varieties a specialty. Owatonna, Min.

DOWNER, J. S. & SONS. General Nursery Business, Fairview, Ky.

DOWNING, CHARLES, General Nursery Business, Newburg, N. Y.

DOWNER, J. S. & SONS, Forest Nursery, Fairview, Todd County, Kentucky.

DEAN, J. A., General Nursery; Blue Earth City, Faribault county, Minn.

EASLEY, B. L., Peru Nurseries; Forest and Ornamental Trees, Small Fruits and Grape Vines, Peru, Nebraska.

ELLWANGER & BARRY, Mount Hope Nurseries, Rochester, N. Y.

FELCH, B. F., Artic Nursery, Hardy Fruit Trees, Small Fruits, Bulbs, and Ornamental Shrubs, 10 miles east of Stevens Point, Wis.

FOSTER, SUEL, General Nursery, Evergreens and European Larch; no humbug. Muscatine, Iowa.

GOULD, INGRAHAM, General Nursery; 72 acres; Catalogues free; Beaver Dam, Wis.

"GRIMES' GOLDEN," the Great American Apple. Send for circulars. S. B. Marshall, Box 2178, Cleveland, O.

GRAVES, SELOVER, WILLARD & CO., General Nursery Business, Geneva, N. Y.

HAGGARD BROTHERS, General Nursery business, Model Nursery, Bloomington, Ill.

HANSON, H, Nurseryman and Fruit-Grower, East Portland, Oregon.

HOOPES, BROS. & THOMAS, General Nursery—Roses and Evergreens specialities, West Chester, Pa.

HOWARD & MOON, Dakota Nursery, Yankton, D. T.

HUBBARD, T. S. & CO., Propagators and Dealers in Grape Vines, Grape Wood, Small Fruits, &c., Fredonia, N. Y.

HUBBARD & DAVIS, Nurserymen and Florists; Flowers, Verbenas &c., a specialty. No. 39 Cass st., Detroit, Mich.

HESSER, W. J., General assortment of rare and new Greenhouse, Hothouse and Bedding plants; Plattsmouth, Neb.

JACKSON, D. F., Nurseryman, Mitchell, Iowa; specialty, Crab Apples and Small Fruits.

KNOWLTON, J. S., Rock River Nurseries; General Assortment, Byron, Ogle county, Ill.

KELLOGG, GEORGE J., Belle Cottage Nurseries, Janesville, Wisconsin.

MARSHALL, S. B., General Nursery; specialty, Grimes' Golden Apple. Cleveland, Ohio.

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* * * * * *

LESSONS OF EXPERIENCE.

THE INFLUENCE OF WARM, DRY SEASONS.

Among the lessons which we have learned we may mention as settled and acknowledged principles the following:

The observation of the last few years, under the influence of warm, dry seasons, would appear to have established the principle that such weather (without excessive drought), especially in the earlier part of the summer, is more favorable to the perfection and ripening of fruits, particularly grapes, than cold wet seasons. The fact is prominently shown in California, as we have witnessed by personal observation; and is especially to be seen in the cultivation of the grape there, and also in Europe, and in our Northern States, where under the influence of such seasons, neither the vine nor its fruit is affected by disease of any kind. These conditions we have noticed are also peculiarly advantageous for the formation of fruit-buds, and the storing up of the necessary perfected food for a future crop, and for the ripening of the wood, so necessary that it may endure the winter with safety.

DRAINING OF FRUIT LANDS.

In conformity with the foregoing remarks, we see the importance of thorough *draining* of our fruit lands, which produces in soil not naturally possessing them, the conditions of warmth and dryness which we have named, thus rendering the condition of the earth, in respect to warmth and dryness, analogous to that of the air, of the importance of which we have before spoken. Besides these advantages it is the thorough aeration of the soil, whereby it is able to absorb fertilizing matter from the atmosphere, rain, and snow, and moisture evaporated from the springs below. Thus paradoxical as it may seem, the same means which guard against excessive wet, also serve to supply moisture in excessive droughts. How aptly does the poet describe this condition:

> "In grounds by art made dry, the watery bane
> Which mars the wholesome fruit is turned to use.
> And drains, while drawing noxious vapors off,
> Serve also to diffuse a full supply."

PREPARATION AND CULTIVATION OF THE SOIL.

It seems scarcely necessary in this presence to say that thorough preparation and enrichment of such soils as are not already rich is essential. Ordinary farm culture will not produce the highest class of fruits; they must have garden culture, and with this they never fail. After this thorough preparation, the cleaner the culture the better, at least in our older States, where the soils have been depleted by cropping. But one of the lessons which experience has taught us most impressively is, that, contrary to our former views, this after-cultivation should be shallowed so as not to injure the roots, but to preserve them near the surface.

MANURES AND THEIR APPLICATION.

The subject of manures is a most important one, and every year becoming more so. The supply of manure in the older part of our country is unequal to the demand, and every year increases the disparity. What would be our feelings if the supply

of wheat, on which we depend for our daily bread, was inadequate to the demand? Yet men are not more dependent for life upon their daily bread than are our fruit crops upon the food which is supplied to them in the form of manure of one kind or another. To supply this want we shall be compelled to rely in great measure upon artificial fertilizers, and chemistry has not yet taught us, as it will doubtless in the future, how to supply the wants of our fruit crops with certainty and abundance. But we cannot too often or too forcibly impress upon the minds of all cultivators the sacred duty of saving every particle of fertilizing material, and applying it in such manner as will produce the utmost effect. And on this last point the lesson which experience has taught is, that manure applied to fruit-trees should be either in the form of a top-dressing or as near the surface as is consistent with the composition of the soil, and the preservation of its fertilizing elements.

MULCHING.

While on this subject we will add as another of the lessons of experience, which may be said to be fixed, the advantage of mulching for dry seasons and soils, whereby the temperature and the moisture of the soils are kept uniform, and the fertilizing elements in a soluble state, an essential condition for the production of perfect fruit.

THINNING OF FRUIT.

This is another lesson which we have learned, and the necessity of which we have often endeavored to impress upon cultivators, and which every successive season teaches with stronger emphasis. It is absolutely necessary for all who send fruit to market, to send large fruit, and the markets are constantly and progressively requiring large and fine fruit. Even the Seckel pear which once commanded in Boston market the highest price, will not now, unless of extra size, sell for any more than, if as much as, common varieties of large size. A medium-sized fruit, or even one of smaller size, may be more economical for use, but until some decided change in the preferences of the majority of purchasers shall take place, large fruit will sell better than small. To produce this, the fruit must not only have good cultivation, but must be thinned, and we agree with Mr. Meehan that "one-half the trees which bear fruit every year would be benefitted by having one-half the fruit taken off as soon as it is well set, and that the overbearing of a tree will in a few years destroy it." We lay it down as a certain rule, that excessive production is always at the expense of both quantity and quality, if not in the same season then in succeeding ones, for when branch is contending with branch, leaf with leaf, and fruit with fruit, for its supply of light and food, it would be indeed an anomaly in nature if this should not result in permanent injury to the tree as well as to the annual crop.

INSECTS AND DISEASES.

The subject of insects and diseases is daily attracting more attention, for their depredations are daily becoming a greater evil, and the importance of entomological investigation is every day more plainly seen. It is less than fifty years since Dr. Harris first published his work on "Insects Injuries to vegetation," and great is the debt of gratitude we owe to him and to the succeeding investigators who have given their lives to studying the habits of these little "creeping things which be upon the earth," that they may teach us how to destroy those which prey upon our trees, and to distinguish our friends from our foes. Every plant imported from abroad brings with it a new insect or disease, and the dissemination of new plants and varieties, without which there can be no progress in horticulture, inevitably disseminates their insect enemies. On this subject the words of Edmund Burke are appropriate: "The most vigilant superintendence, the most prompt activity, which has no such a day as to-morrow in its calendar, are necessary to the farmer;" and we may add still more to the fruit grower, and ten fold more necessary in combating our insect enemies. The neglect of battling with these vile creatures is the great bane to successful cultivation; but as long as moral evil exists in the world, so long may we expect there will be evil in the natural world, and he who is not willing to contend against both is not worthy of the name of either cultivator or Christian.

We belong to that class who have faith in the ultimate triumph of good over evil in the moral world, and our faith is not less strong that the insect plagues shall, if not exterminated, at least be subdued, so that the labor of keeping them so far in check that no material harm shall be caused by them will be comparatively easy. We have discovered means for preventing the ravages of the currant worm, curculio, canker-worm, caterpillar-melon bug and aphis, and the mildew and other diseases of our vines. If we can do this, is it not reasonable to suppose that we can discover remedies for, or the means of preventing, all the diseases and depredations that vegetation is liable to? Is is consistent with the Divine economy, so benevolent in all its ways and works, to believe that this fair creation has been spread out only to be destroyed or that seed-time should be promised and the harvest withheld; and from year to year our hopes deferred and our hearts made sick? Is it in harmony with that Divine Providence which created all things and pronounced them very good?

If any one say that it is no use to contend with these hordes of vile creatures, or the disappointments upon which all culture is incident, let him remember that it is the mission of life to struggle against and overcome them. Instead of fretting and groaning over these evils, let us battle with them and conquer them. Thus shall we gather the rich fruits of our industry, and,

> "Where some would find thorns but to torture the flesh,
> We'll pluck the ripe clusters our souls to refresh."

But some one replies, let nature do all this, let nature perform her perfect work; true, but nature brings us weeds, thistles and thorns, insects injurious to vegetation as well as those that are useful; and we were placed in this world not merely to assist nature, but to meet and overcome the obstacles which she sometimes places in our path,—to elevate her to the highest and noblest purposes of her creation.

Many of the difficulties and privations we endure, if met and conquered, will prove blessings in disguise. It is labor of mind as well as body, it is work, work, work, that makes men strong. Work is the great engine that moulds and moves the intellect, enterprise and destiny of the world—work is the greatest temporal boon bestowed on man—work is the heaven-appointed means of advancement to a higher state of perfection; and in no profession is this more apparent than in the calling

of the pomologist. This idea is well expressed in the following lines, illustrative of the blessings of labor:

"The first man and the first of men,
Were tillers of the soil;
And that was mercy's mandate then
Which destined man to toil."

If man seize the lightning in his hand and make it work for him in earth, air or water; if he can descend into the secret labratory of Nature, and learn the constituents of soils and manures, and their adaption to each other; if he can learn how she prepares the appropriate food for all vegetable life, from the humblest plant clinging close to the bosom of earth, only blooming to die, to the lofty Sequoia rearing its head to heaven and braving the tempests for thousands of years; if the physician can discover the agents which generate disease in the animal kingdom, and prescribe antidotes and remedies for each, may not the cultivator acquire a knowledge of the diseases which affect his trees and plants, and how to cure them?

Is there any element in nature which man cannot make subservient to his use? Is there any disease for which nature has not provided a remedy? Is there any enemy to vegetation that cannot be overcome? True, there are many things of which we know but little, and which require long and careful study, but there are others which are well established, and which one fact may demonstrate as well as a thousand.

SHELTER.

The necessity of shelter was not as soon perceived as some of the other lessons which I have named; yet, with perhaps the exception of a few favored spots, its importance year by year is becoming more generally appreciated, especially on our open prairies and in the northern and north-western portions of our country. The fact is established, that the removal of forests diminishes the quantity of rain, increases the evaporation of moisture, reduces the temperature, and subjects our fruit to greater vicissitudes, so that the peach and many of our finest pears can be no longer cultivated at the North except in gardens or sheltered places. The importance of shelter was well understood as long ago as the time of Quintinye, who, in his work on gardening, gives full directions for planting trees for shelter. This was in a country long settled and denuded of its forests; and though our ancestors, planting fruit-trees in a virgin soil, thickly covered with wood, failed to perceive its necessity, we in our older states, who have come to much the the same conditions as existed in the time of Quintinye, experience the same want.

There may be exceptions to this rule, as in the South, where the fruit season is warm and dry, producing similar conditions to those afforded by shelter under glass. We may find varieties, and probably shall, adapted to exposed situations; but at present the larger majority of our finer fruits will be benefited by the shelter of belts of forest trees. We are glad, therefore, to see the recognition of the advantages of the forest trees on the part of the managers of our Pacific railways, not only as affording, shelter but as collecting moisture from the atmosphere, and so rendering available vast regions previously uninhabitable from drought. This good work has already been commenced on the line of the Kansas Pacific Railroad.

METEOROLOGY.

Besides the lessons which experience has already taught us, permit me to mention one which pomologists ought to learn, and which, from present indications, I have no doubt they will learn. The pomologist should have a better knowledge of the science of meteorology than we now possess. The action of light and heat; the influence of the winds, of frost, fog, water, and the electrical condition of the air and earth, have a most important bearing, and we believe that when our science shall have attained to its greatest perfection, there will be a discreet classification of our fruits, assigning to each its proper soil, location and aspect. We must not expect to alter the laws of nature, but to conform to them. We do not expect to restore the lost Pleiad, nor do we expect to find any supernatural means whereby improvement and progress can be attained, without mental or physical exertion, but we should endeavor to understand some of the workings of that mysterious machine which generates and perpetuates all vegetable life. True, the "wind bloweth where it listeth," as of old, but it seems probable, if not certain, from the investigation made at Washington, that a man can not only tell from whence it will come and where it will blow, but where the sun will shed its rays and the clouds diffuse their showers, and the time may come when the laws which govern the weather may be settled with nearly as much certainty as those which now govern the calculations of the astronomer.

What wonders has science wrought in modern times, but these are only the rudiments of that great plan which Providence has established for the happiness of mankind. "These are but parts of His ways" which we now see, glimmerings of that boundless exhibition of power, wisdom and goodness which shall culminate in the perfection of all created things.

ORIGINATING NEW VARIETIES.

I commend to you again, as I have done in my former addresses, and shall continue to do while I live, the important and benevolent work of organizing new varieties of fruit, both as a means of improvement, and as a substitute for those which have experienced the decline incident to all things of human origin. Our country, and in fact the whole world, has been so thoroughly explored, that we can scarcely expect to discover any very important addition to accidental varieties. Our main source of improvement, therefore, is to be found in the production of new kinds from seed, and I again urge upon you the great importance of continuing your efforts in this most interesting and hopeful department of labor. The acquisitions already made give promise of still richer rewards to him who will work with Nature in compelling her to yield to his solicitation for still greater improvement. Much has already been done, but this branch of science is still in its infancy, and opens for the pomologist a broad field for enterprise. It may require time, and patience, and care to produce a superior variety, but we have the most cheering assurance of the time when every section of country shall possess fruits adapted to its own locality. There is no better illustration of what can be accomplished, than what has been done, in the production of the various and excellent American fruits, which have been raised since the establishment of our Society. If each member should originate one good variety, adapted to a wide extent of territory, or even to his own section, he would become a public benefactor. Think

of the number of persons in the United States who are now engaged in the growth of fruits. Should each one produce one good variety, a not impossible thing, we should have varieties enough to endure for centuries, adapted to every soil and location in our vast territory.

Let any one visit the nurseries established by Mr. Clapp, in Massachusetts, the originator of the Clapp's Favorite pear, and see the many seedling trees now just coming into bearing, and he cannot but be delighted, as we have been, with witnessing the trees in their youthful vigor, and studying the various forms into which the Bartlett, the Flemish Beauty, the Beurre d'Anjou, the Urbaniste, the Beurre Clairgeau, the Beurre Bosc, and other standard varieties have been changed, and he cannot but admit that the daily opportunity for such study would be an ample recompense for all the trouble and expense of raising such trees. But besides this gratification, is the probability of raising a new variety, which, in one point or another, shall be superior to any before acquired, and which shall be a blessing to the nation. Does any one object, that fruits adapted to cultivation through the country are few and far between? Let him raise a variety which shall be better adapted to his own locality than any before known. Let us have Favorites for Virginia and Georgia, and for all and every State in our nation. If I could feel that I had been the means of inducing our members, or other cultivators, to raise new fruits worthy to bear their names, I should feel that I had lived for a useful purpose.

The importance of producing new varieties from seed is no longer questioned. The fact, that the seed of good varieties will generally produce good offspring, is now well established. These are, however, the natural results which have been derived from fruits already improved; and we can offer no better proofs of the advantages of artificial impregnation than the multitude of improved varieties which have been produced in the vegetable kingdom by this process.

We have learned many of the laws which govern hybridization, and the more we become acquainted with this most interesting art, the more we work with Nature in these efforts for her improvement, the more we shall admire this most perfect and beautiful illustration of the great fundamental law, which has been established from the beginning of time, for the improvement of men, animals and plants. Well did Linnæus exclaim when overwhelmed with the discovery of an unknown principle in this most interesting study, "I have seen God passing by," and well may the contemplation of this law inspire us with the same reverence and delight, and,

> "like conductors, raise
> Our spirits upward on their flight sublime
> Up to the dread Invisible, to pour
> Our grateful homage out in silent praise."

Let us go on then developing the wonderful resources of this art. Go on, persevere, and you will leave a rich inheritance for your heirs. Go on, and the time will come when every man shall sit under his vine and fruit-tree, when all our hillsides shall rejoice in the burden of the vintage, our valleys teem with the golden fruits of the orchard, and the passing breeze become vocal with songs of gratitude and praise for these benefactions to posterity.

The increasing interest in the cultivation of fruit at the South induces me to offer a few suggestions in regard to the best means of obtaining varieties suited to that region. Of apples and peaches a large number of superior varieties have already been produced at the South perfectly adapted to the climate; but the supply of fine varieties the past year is inadequate, especially of late-keeping varieties, as the latest kinds grown at the North cannot, when grown in the Gulf States, be preserved beyond autumn. To supply this deficiency, we would recommend the trial of such varieties as refuse to ripen at the North,—Chaumontelle, the Colmar and its sub-varieties, Beurre Rance Bergamot Fortunee—which appear to need a longer season than ours to arrive at maturity. These and seedlings offers, we think, the best prospect for a supply of late pears in the warmer parts of our country. We would also recommend a trial of the sorts used at the North for cooking, as some of these have proven fine dessert pears in the South. And probably some of the fine old varieties which have decayed in the East, and show signs of the same fate at the West, may, in more genial climates, have their existence so far prolonged as to be among the most desirable.

* * * * * *

THE INCREASING IMPORTANCE OF FRUIT CULTURE.

The importance and value of our calling in developing the resources of our country, in the occupation of unimproved lands, adorning our homesteads, enhancing the value of real estate, multiplying the blessings and comforts of life, and promoting a great source of national wealth, cannot be too highly appreciated. The more I reflect upon the progress we have made, the more am I confirmed in the belief that this branch of culture will ere long become second only to the growth of the bread and meat of our country. The enormous production of strawberries and other small fruits, the millions upon millions of baskets of peaches,—not to speak of the apples and pears and other fruits that are now annually produced,—give promise that the time is fast approaching when all classes of society may enjoy this health-preserving condiment as a portion of their daily bread. Nor can I refrain from referring once more to the benign influence which our employment has upon the moral and religious instincts of the heart, the refinement of taste and the welfare of society. Whatever pleasure may be derived from other pursuits, there is surely none that has afforded stronger evidence of a high and progressive state of civilization or a more ennobling influence, than the culture of fruits. "This," says General Dearborn, "must have been the first step in the march of civilization, while the method of ameliorating their character and multiplying their varieties may be considered as taking precedence of all human efforts in the industrial arts."

From the day when God gave our father in Eden trees, "pleasant to the sight and good for food," down to Solomon, who said, "I made me gardens and orchards, and I planted in them all kinds of fruits," and through the successive generations of men, the cultivation of trees and plants has been the criterion of taste and refinement. No object of attachment is more naturally allied to the instincts of the soul, and truly did Emerson remark, "he who knows the most, he who knows what sweets and virtues are in the ground, and how to come at these enchantments, is the rich and royal man." And what greater benefactions can you leave to posterity than these memorials which shall live and grow, which shall tell of your love of the most

beautiful works of nature, kindred and home, when you are slumbering in the grave? Far better these for the perpetuation of your memory, and the benefit of the advancing millions of coming time, than all the monumental shafts and pillars of polished marble that ever graced the hero's tomb.

Peach Rot and the Curculio.

Peach rot is mostly connected with mechanical injuries to the fruit. Any puncture or abrasion of the skin, from whatever causes, will in most cases, be followed by rot even in dry weather, and quite certainly so in wet seasons. The chafing of peaches against each other or against the limbs of the tree, punctures by bees or other insects which feed upon the juices of the fruit, will all furnish conditions which in damp weather surely lead to rot.

But the damages done by the curculio, both in depositing its eggs and in feeding, unquestionably cause a very large proportion of the peach rot which has become so wide spread. In all peach growing neighborhoods the air is loaded with millions of the spores of this microscopic fungus which we call rot, that attach themselves to the surfaces of all the fruits, but which are powerless for harm on the healthy and perfect skin of any fruit; but every injury which exposes the juice of the fruit furnishes a suitable soil for their germination and growth. And as all fungoid growths are greatly dependent upon moisture, this peach rot develops with alarming rapidity in warm and showery weather, while in very dry seasons it may be so slow as to attract little notice.

The rot also spreads fatally by contact, as every peach hanging in contact with a rotten one is sure to rot; and the spatter and drip of the rain communicates the infection with great rapidity. This we may call a transplanting of the infinitesimal fungi. I have often seen half the fruit of a tree infected with rot after a showery night, where on the previous day but a dozen injured specimens could be seen. In seasons when the rot prevails badly we hear much complaint of peaches that are apparently sound when packed for the market, rotting down in the packages in course of transportation—the darkness and moisture in the close air of the cars, with the bruises incidental to packing and carriage, all being favorable to the growth of the fungus

These facts lead to several important conclusions:

1. Peaches will be more exempt from rot, other circumstances remaining the same, in a dry soil and in a dry climate.

2. Orchards should be planted less closely than has been common in many sections. Twenty feet each way is a safer distance than sixteen, while twenty-five or thirty may be still better. An open orchard can be better cultivated, will dry out quicker, and is more airy and healthy, and in all respects can be more thoroughly managed.

3. Trees should be grown with high trunks to facilitate clean culture, free circulation of the air, easy access to the peach borer, and cheap methods of killing the curculio.

4. The pruning should be such as to expose the fruit well to the sun, and to secure large and healthy leaves and vigorous growth of wood.

5. The fruit should be thinned on the tree, so that no two peaches will ever come in contact by growth and the more space given to each fruit the larger and finer it will be. I would emphasise this point of thinning so much as to isolate every peach, as the sanitary results, as well as the superior size, color and flavor of the fruit, will abundantly justify the expense. I have to-day compared peaches so treated with those grown thickly on the tree, and found their average weight to be fully three times greater, the cultivation and other treatment being the same. It need not be argued that a given number of pounds of large fruit will bring a much higher price than the small specimens, or will find a ready sale, while the little ones rot down waiting for a purchaser.

6. All trees in fruit should be faithfully examined every day as soon as any rot appears, and all rotting or injured specimens be removed and destroyed. Rotting fruit should never be picked into the same basket with that designed for market, as the contact with the affected fruits will be very likely to cause decay in the package of the sound ones.

7. The last condition of success, or rather the first most vital and indispensible condition, which is more important than all the others together, and without which all the others will prove of little value, is curculio killing.—*Cor. N. Y. Tribune.*

A Seedling Pear.—The Farribault (Min.) *Republican* says: Mr. O. F. Brand, of the Farribault Nursery, left with us, on Monday, some pears grown in Minnesota, which were of fair size and excellent flavor. The tree on which they were produced was grown from the seed of a Canadian pear tree. It has endured our climate 15 years without injury, and has borne fruit three years. It appears to be a desirable acquisition.

Seven Best Autumn Pears.—The Rural Southerner says: The following seven varieties, we believe with Mr. Peters, to be the best varieties for autumn: Bartlett, Seckel, *Duchess de Angouleme*, Belle Lucrative, Winter Nellis, Mix and *Beurre Diel*. The world may be searched over, and no better varieties can be found for this section.

The Saunders Seedling Raspberry.

In October No. we gave a cut and description of the Herstine. We now present an illustration of another of Mr. Herstine's seedlings, called the "Saunders." July 6, 1870, a committee from the Pennsylvania Horticultural Society visited the grounds of Mr. Herstine, to examine and report upon the "Saunders" and other seedlings, and in their report to the Society the following is said of the "Saunders:"

"Saunders," in honor of Wm. Saunders, of Experimental Gardens, Washingtou, D. C. Plant a good bearer, suckering freely; canes green, shaded with purple; spines numerous, small, and light green; foliage light green and abundant; fruit very large, round, of a crimson color, with large grains; flavor of high character, and delicious.

The Grape and its Enemies.

By I. G. Mask, Moorefield, W. Va.

Ed. Pomologist and Gardener:—The September No. of the Pomologist is just received, and its perusal has been both pleasing and profitable. It is so replete with matters of practical utility on the subject to which it is especially devoted, and withal contains so much of instructive information upon everything bearing upon or appertaining to pomological and horticultural pursuits, that its contents should be read by all who are in any way connected with them, and its possession indispensible.

Our locality has been sorely afflicted with one of the most destructive drouths ever known, and at this writing there is no sign or prospect of a change. Every species of vegetation is literally *burnt up*. Farm, garden and orchard have all fared alike. The fruit in this immediate vicinity (with the exception of grapes) was all (the worked or improved kinds,) killed in the bloom in May. The frost however, from which we suffered was not of very wide extent. Our neighbors a few miles off have fruit, but of poor quality. It is stunted and rendered almost valueless by the drouth. The only orchard fruit which withstood the frost hereabouts (on the low lands,) was the wildings, or seedling peaches. All the worked trees without exception, succumbed, and as this is generally the case, there is a growing prejudice against worked peach trees, which will probably result in discarding them altogether in future.

I wish to say a few words about the grape and its enemies, or perhaps I should rather designate them as its *friends*. We have now a pretty large breadth of grapes planted in this neighborhood, comprising chiefly the Concord. From the high character which has been given to the Delaware, however, in the various horticultural publications, a number of our vineyardists have planted them pretty extensively. The present is the first season that they have shown fruit. Their beautiful appearance just previous to ripening up produced a lively feeling and high expectations on the part of their owners. But alas, they were sadly disappointed. An interloper appeared to rob them of their anticipated pleasure, as well as profit. Birds, bees, wasps, hornets, yellow jackets, and every kind of insects tempted by their luscious sweetness, and invited by their covering, which encased its honeyed juices, swarmed about them, and almost ere their presence was discovered, had well nigh destroyed the whole crop. A war upon the birds was at once inaugurated, and so far as they were concerned it was partially successful; but as the fruit approached and attained maturity, the insects increased, and redoubled their energy, and as no means could be devised to prevent it, the destruction of the whole crop was complete.

The Concord withstood the assault of the bees and wasps, which was vigorously made upon them after the Delawares had failed, and their thick hides were impervious to the weapons of their assailants, but as they matured and their skins softened, and their tempting sweetness increased, the determined efforts of the robbers prevailed. The ripest berries of the bunch were first punctured, and in a short time the whole mass was riddled, shrunken, dried up and destroyed. This is an experience which has taken us all aback, and has cast a damper on grape culture, at least of the early sweet, and thin skinned sorts, like the Delaware, Crevelling, &c. I had one vine of the latter in bearing this season, every berry on which was destroyed in an hour.

One cause however, has no doubt tended to render this season more disastrous than others. The early and long continued drouth destroyed everything upon which honey eating insects subsist; had there been the usual amount of fallen orchard fruits and blossoms the grapes might have escaped with at least a partial visitation. This is only a supposition however. The sweet grapes have never until lately been grown here, and it is feared that their honeyed juices will tend to tempt the bee from his accustomed food, and induce a decided preference in the future for the grape. If so, grape growing for profit will have to be abandoned in this region, or bee-keeping restrained. Both cannot endure together.

Mathews' "No. 13" Grape.

By C. Bradley, Nauvoo, Ill.

Editor Pomologist and Gardener:—In the fall of 1868 Capt. James Mathews of Knoxville, sent me five cuttings (10 buds) of what he called Rodgers' "No. 13," at the same time stating that they were not the true No. 13, but a superior grape and well worthy of cultivation. In the spring of 1869 I set those buds in Clinton stocks. They all grew and made an enormous growth of vine, two of them making 100 feet of ripe wood. In '70 they bore a large amount of splendid fruit, some of which was exhibited at the State Fair at Keokuk, and was admired by all who saw it. In the spring of '70 I set a few more buds in Clinton stocks. Nearly all lived and made a prodigious growth of wood, and this year they were all in bearing, making a great crop of most excellent fruit, which has been seen and tasted by hundreds of people, approved and commended by all. As the appearance of the foliage and the fruit are quite similar to the Goethe, or Rodgers No. 1 it is claimed by some to be the same. It makes but little difference to me whether it is No. 1 or something else. I know I

have a hardy grape, a great grower and a most prolific bearer. But as the question has been and is now agitated, it would be as well to find the true position of this grape and let it go by its right name. If Prof. Mathews of the Iowa Agl. College has been the means of bringing it into notice and developing its superior merits, let him have the credit of the same, and let it be called Mathews' No. 13. As there are plenty of the Goethe in this place 4, 5 and 6 years old, I have had a fair opportunity of comparing both vines and fruit. Without wishing to detract from the merits of the Goethe in its fine growth and healthy foliage, I will here say, that I have vines of "No. 13" one year old last April, that have produced from 15 to 20 lbs of fruit this season and are now *much larger* than any Goethe of 5 and 6 years of age in this place. If any one doubts my word let him come and look at these *one year old vines* and he will no longer doubt. Another test. Mathews "No. 13" is at least 10 days or two weeks earlier than the Goethe, and by close examination a person can easily see a marked difference in the shape of the clusters and the fruit. The clusters of the Goethe are more compact and the berry is ovate or with a rounded taper from base to apex, while the No. 13 is oblong and obovate or rounded ovate, the small end of the berry being at the k bse, similar in shape to the Isabella, but much larger. These tests and comparisons are sufficient to convince me that the two are not identical. If others are not convinced let them read the article in the last July No. of the POMOLOGIST, by Prof. Mathews giving his experience in the early history of this grape.

Fruit in Tennessee.

BY W. C. CONDIT, MARYSVILLE, EAST TENNESSEE.

ED. POMOLOGIST AND GARDENER:—The climate and soil of Tennessee, in its eastern portion, probably afford as many of the requisites for a good fruit region, as can be found in any portion of as large an area of our country. In the valleys are found plats and elevated ridges, bluffs, mounds and highlands. And among the mountains there are ridges, spurs, bluffs, high plateaus of large extent, ravines canyons, bottoms, and peaks. And altogether there may be found every variety of exposure, and a great variety of temperatures. The great plateau of the Cumberland range of mountains is about 40 miles wide and three times as long. And throughout the whole extent of its borders, are locations, which for successful fruit growing of all such kinds as are common to temperate latitudes, cannot be excelled. The sides of the mountains are also well adapted to the same purposes. Peaches and apples seldom fail in any of these localities. And there is no reason, to the best of my knowledge, why grapes, pears, and other fruits may not do as well; but they have not been much tried yet. The peach and apple crop was a failure the past season in certain portions of the plateau; but there was a heavy crop of peaches in the valleys and on portions of the plateau, and also a good crop of apples. The failure in some sections was due to the frost 23d of April, which also destroyed the fruit in a large portion of the North.

In favor of this region, it may also be said that the insect enemies of fruit are much less numerous than in many other fruit regions; and indeed there are fewer of them here, than the writer has seen in any place he has ever observed—and he has lived in Iowa, Missouri, Ohio, New Jersey, and New York. The tent caterpiller is rarely ever seen on the mountains, I understand the same is true in the valleys. The bark louse is almost if not entirely unknown. There are some wormy apples and peaches, but they are very scarce. I visited a nurseryman's orchard and garden a year ago, in the valley west of the Cumberland range, and found that he had some rotten grapes, of the Iona, Israella, Adirondac, Martha, Concord, Delaware, and perhaps some others. But the Concord was least affected. He also spoke highly of one other kind. But on the Cumberland plateau the grapes I noticed, Concord, Catawba, Clinton, Norton's Virginia, and Isabella, (I think) were perfectly sound. I believe there will generally be much less rot in high locations than in the valleys.

I am located for the present about 15 miles from the foot of the smoky mountains and 45 from the Cumberland, in the Tennessee valley. The peach crop here the past season was large, and I believe it generally is. There was a moderate crop of apples. I have seen no grapes except wild ones. The people of this section have not yet been waked up to the beauty of grape growing. I will say more in another letter.

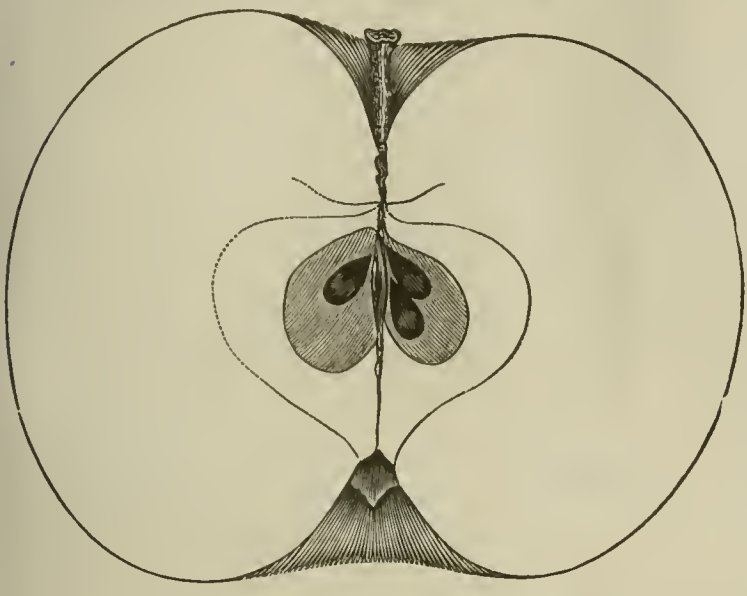
PEARS IN TEXAS.—The San Antonio *Herald* tells us that Gus Jones, of Gonzales, has been successful with the Pear for the last twelve years, "drouth or no drouth;" and states that he recently exhibited, from a tree of his own raising, a twig fifteen inches in length, with twenty-six pears on it! Mr. James Vance, of San Antonio, has also raised the Pear very successfully, for many years past.

LARGE PEAR.—The Eddyville *Advertiser* says: Mr. Robert Oldham took from a tree on his farm in Harrison township, Mahaska county, this year, a pear that weighed 1¼ lbs. Also one that weighed 18 ounces, and another of 13½ oz. weight. Four weighed 3 lbs. and 12 ounces.

Wine Apple. (*Hays' Winter, Pennsylvania Red Streak.*)

By the Associate Editor.

Fruit large; weight from 10 to 12 ounces; form round, oblique, flattened; color yellow, mostly covered with light and deep red, indistinctly striped and mixed; dots prominent, star shaped; stem short and thick; cavity rather narrow and deep, russeted; eye large; basin very wide, deep and regular, slightly furrowed; core medium, closed; carpels wide; seeds large, broad and long; flesh yellow, juicy and vinous, mild subacid; quality good; use kitchen and market; season Nov. to March. Tree good, regular grower, forming a handsome spreading head; leaves dark, narrow, curly; an early and abundant bearer; healthy. This apple has succeeded so well wherever tried in Kansas, that we do not hesitate to recommend it for general cultivation.



Skinner's Seedling Apple.

The San Jose *Agriculturist* speaks in high praise of this new California seedling. If it possesses the good qualities awarded to it in the following description, too much cannot be said in its praise.

"Several parties have called our attention to this apple, as the very best and most desirable early cooking and eating apple in this country. *This apple is a native of San Jose.* The seed was brought from the West, and planted in 1854. The apple first attracted attention in 1857. Within a few years it has become a standard favorite with all the fruit growers. The size and shape of the fruit resembles the Spitzenburg; but the color of the fruit is much the same as the Bellflower, but not so yellow. The flavor also resembles the Yellow Bellflower, while the flesh is finer and the pulp quite as juicy as the Rhode Island Greening. We regard the crispness and richness of the fruit as even superior to the Gravenstein, which, by the way, has always been our leading favorite among early apples. One of the most important qualities—in fact the very best for this country—is its persistence in hanging upon the tree. The greatest trouble with the fine varieties here, is the continual dropping before and after ripening; and one day lying in the sun, upon the dry ground, will spoil the fruit. Hence, this apple, the Skinner's Seedling, stands deservedly at the head of all apples, in this that it will rot and dry up on the tree, before it will drop. Its season is middle of August to middle of September."

Discussion on Apples, at the Meeting of the American Pomological Society, at Richmond, Virginia.

One object of holding this session of the Society in Virginia was to obtain more specific information concerning Southern fruits, with a view to perfecting the Society's catalogue. Hence it was determined to only discuss the fruits respectively best known in the South as adapted to general cultivation. In the Society's catalogue one star (*) opposite the name of a State indicates that the first named is worthy of cultivation in that State, and two stars (**) indicate that the variety is recommended as being of great value or superiority in that locality. With a view to doing the largest amount of work in a given time, members from the different States respectively named the number of stars they would give the respective fruits, avoiding comments except where deemed necessary.

Red Astrachan was marked with ** for Georgia, Virginia, Florida, South Carolina, District of Columbia, Alabama, Tennessee and Kentucky. Flagg (Alton, Ill.,) said it was unproductive there, has a thin skin, is liable to crack and to attacks of the curculio, but would not mark it out of the list, while Earle (same State,) would not. Dr. Howsley (Kansas) knew it to be a fine apple in Kentucky, and a success; but in Kansas it is late coming into bearing; yet by top-grafting on stocks adapted to the soil the objection is removed. Weir (Lacon, Ill.,) says with him it bears young; healthy tree, but not productive, nor profitable. Miller (Iowa) nearly worthless in Central Iowa; discarded; never saw a well ripened specimen—cracks and falls from the tree. Jewell (Minn.)—Tree hardy and more productive on timber than prairie lands. Weir (Ill.)—Trees on prairie soil have not borne;

tree hardy and grows well; hope that it will succeed as it grows older. PAUL (Mass.)—Grows well in Massachusetts and Eastern New York; hardy when young and a great bearer on all soils and in all localities. LINDERMAN (Mich.)—On the sandy soils of Western Michigan it produces well and is a fair fruit; on the clay loams of the central and Eastern portions of the State it is not so productive, and scabs and cracks. MASTERS (Neb.)—Healthy and hardy tree but not productive on the rich prairie soils; but on the thinnest lands and on the bluffs, in a few orchards have seen it producing well; should be cultivated only on thin and sandy soils; on prairie soils its foliage turns yellow and then white; would not recommend it for general culture in Nebraska.

American Summer Pearmain was marked with a * each for Georgia, Alabama, Kentucky, Nebraska, South Carolina and Minnesota, and ** for Virginia, District of Columbia, Kansas and Maryland.

Early Harvest—BERCKMANS would give this apple * for general cultivation in Georgia, (not a valuable market) fruit and ** for cultivation for family use. It received ** for Alabama, District of Columbia, Kentucky and Tennessee, and one * for South Carolina, Kansas, (Col. HARDEE of Fla. said, "give it an 0 for our State,") Illinois and Virginia.

Red Margaret, or Striped June of the South, but declared to be *Red June*, received ** for Georgia, South Carolina and Iowa, MASTERS (Neb.) worthless in Nebraska.

Summer Queen received ** for Georgia, District of Columbia, Maryland, Northern Virginia and Alabama, and * for South-eastern Virginia.

Horse Apple received ** for Georgia, and, if synonymous with "Hass," the same for Minnesota, and if "Hoss" the same for Southern Illinois. There was a confusion of names here.

Carolina Red June received ** for Georgia, Virginia, Maryland, Kansas, Kentucky, South Carolina, Nebraska, and for Central Iowa. FLAGG (Ill.)—It should be highly cultivated with us. WEIR (Ill.)—If thoroughly cultivated, with trees low headed and not allowed to overbear, it is valuable. MILLER (Iowa)—Scabbed bad two or three years ago, but all right again.

Summer Sweet Bough received ** for Virginia, District of Columbia, Maryland, Kentucky, and Connecticut, and * for Georgia, Kentucky, Alabama, Michigan and Massachusetts. Illinois and Nebraska refused to star it.

Autumn Sweet Bough received ** for Georgia and Kentucky.

White Winter Pearmain received ** for Georgia, Kentucky, Alabama, South Carolina, and (from Dr. HOWSLEY, Kansas,) while Dr. STAYMAN demanded and would give it but one for Kansas. Iowa gave it a * MILLER (Iowa) would give it a dozen *s for Iowa did it not scab so badly.

Carter's Bloom received ** for Georgia.

Carolina Greening received ** for Georgia, South Carolina, Kentucky, and * for Maryland and District of Columbia.

Buckingham received ** for Middle Georgia, South Carolina and Virginia; and * for Maryland and District of Columbia. FLAGG (Illinois) said the *Salem*, which he had fruited two or three years is identical with this apple.

Taunton received ** for Middle Georgia, Kentucky and Alabama.

Ben Davis received ** for Georgia, Kentucky, Nebraska and Kansas; and for market purposes alone ** for Illinois and Iowa. It also received * for Alabama, District of Columbia, Maryland and Virginia. Michigan refused to give it any.

Cannon Pearmain received ** for Virginia, District of Columbia, Maryland and Kentucky, and a * for Kansas. Dr. HOWSLEY (Kansas) stating that it was introduced into Kentucky from Virginia in 1795 by EDWARD DARNABY. SAUL (D. C.) said it originated in Loudon Co., Va.; while WILLIAMS (Va.) claimed it originated in Bradford Co., which adjoins Loudon.

Holly received * for Kansas and Kentucky, Middle Georgia refusing to give it one.

Junaluskee received ** for Alabama, and * for Georgia and Kentucky.

Mangum (or Carter) received ** for Kentucky, Alabama and Kansas, HOWSLEY (Kan.) remarking that it was one of the best apples grown in Kansas. It received * for Virginia.

Nickajack received ** for Virginia, District of Columbia, Maryland and Alabama; * for Middle Georgia, Kentucky and Illinois, one Illinois member remarking that he thought it merited about * and a half. Pennsylvania and Kansas refused to give it any.

Pryor's Red received ** for Middle Georgia, District of Columbia, Maryland North Virginia and Southern Illinois, and * for South Carolina and Iowa. ALLAN (Va.)—It is useless as a market apple in East Virginia; is unproductive, and the tree is not healthy; it should only be recommended on account of its quality; grown on strong soils in high localities, it is a useful apple for domestic use, but not profitable. HOWSLEY (Kan.)—Top graft it, and it is excellent in Kentucky. FLAGG (Ill.)—In some parts of Kentucky it has proved unhealthy; in Southern Illinois it is healthy and productive. HOWSLEY (Kan.)—It must be grafted above ground, and it will prove profitable. WILLIAMS (Va.)—In Northern Virginia it is entitled to one *. CHAMBERLAIN (Va.)—In the extreme Northern part of Virginia it is a valuable apple, hence I gave it **. LANGDON (Ala.)—It does not succeed in South Alabama. MILLER (Iowa)—Comes into bearing late, but bears heavy crops alternately when once in bearing.

Gilpin received ** for Virginia and South Carolina, and * for Middle Georgia, District of Columbia, Kentucky, Nebraska, Illinois and Minnesota. KING (D. C.)—In Maryland it is excellent on rich soil.

Shockley—** for Georgia, Iowa, Marylaud, Alabama and South Carolina; * for Illinois. BERCKMANS [Ga.] says it is the best winter apple for Middle Georgia; and FLAGG [Ill.] says it is promising in Southern Illinois; tree strong and vigorous. ELLIOTT (Ohio)—Popular throughout the South.

Stevenson's Winter received ** for Georgia and Alabama.

Yates received ** for Middle Georgia, BERCKMANS saying that it resembled *Hall*, but is superior to it.

Large Striped Winter Pearmain received ** for Georgia, and * for Kentucky and Kansas.

Mason's Stranger—ALLAN [Va.] said, is for Eastern and Southern Virginia, one of the best winter apples we have.

Pilot—ALLAN [Va.] says originated in Nelson Co., Va., and is one of the best apples for the Piedmont section of Virginia.

Winesap received ** for Virginia, District of

Columbia, Maryland, Kansas, Kentucky, Iowa and Nebraska, and * for New Jersey, Southern Illinois and Michigan.

Rawle's Jannette received ** for Virginia, District of Columbia, Maryland, Kansas, Kentucky, Nebraska, Iowa and Southern Illinois, and * for Northern Illinois.

Maiden's Blush received ** for Virginia, Kansas, New Jersey, Illinois, Iowa, District of Columbia and Pennsylvania, and * for Massachusetts, Nebraska, Maryland and Kentucky, Florida refusing to give it any.

Fallawater received ** for Michigan, Virginia, Pennsylvania and Iowa.

Yellow Newtown Pippin (Albemarle Pippin in Virginia,) received ** for the Piedmont region of Virginia and for Kansas.

York Imperial received ** for Virginia and Pennsylvania, and * for District of Columbia and Maryland.

Winter Sweet Paradise received ** for Virginia, Kansas and Iowa. MILLER [Iowa]—One of the best of trees in Central Iowa, and fruit unsurpassed by any other sweet apple.

Loudon Pippin received ** for Virginia, District of Columbia and Maryland. CHAMBERLIN (Va.) says the original tree was produced on the farm of LEVI WHITE, Loudon Co., Va., and is still a vigorous bearer; has recently produced in one season eighty bushels of marketable apples. It is a thrifty growing tree, spreads very much; fruit large, delicious in flavor, and promises to be one of the leading varieties of winter apples in the South.

Summer Pruning--Why Injurious.

Will you please give your views about Summer pruning, and the cause of its injurious effects upon fruit trees. I have read several articles in horticultural journals which, in the main are opposed to the operation. M. P.

When annual plants (those requiring but one growing season to perfect themselves,) have fully developed their fruit, all vegetation ceases—the mission of the plant has been accomplished. In perennials (those that live through a series of years) there often commences after the maturity of their fruit a new vegetation, or rather there is a continuation of their vegetation which is kept active until Fall. One of the most marvellous phenomena of nature, essential to the life and preservation of plants, is the manner of their nutrition which allows the various species to assimilate their growth with the different localities of the earth; the carbonic acid of the latter is partially absorbed by the leaves, and is necessary to the formation of new leaves and wood. This absorption of carbonic acid continues during the period of active vegetation; still in most trees, especially those whose Spring growth commenced early and was rapid, the formation of new wood and leaves ceases about August.

The change from wood-producing sap to maturing sap then takes place by producing starch, which causes the already formed wood to mature and perfect itself for the production of fruit the following year. We often see this transformation take place in seasons of protracted drouth. When the wood of many of our fruit trees becomes partially matured. If this season of drouth is followed by rain which brings the dormant vegetation into activity again, new leaves and wood are formed, but being produced late in the season the wood is seldom matured when frost sets in. This secondary growth is therefore incapable of producing the same amount of fruit as that portion of the wood which was formed and produced in a normal period of the growing season, besides its production is only possible to the detriment of the first growth, which is thereby weakened.

Summer pruning has an effect similar to that produced by drouth when it brings a second vegetation; at every pruning new wood will be formed, and the later the pruning has been performed, the weaker will be the wood produced. By thus continually stimulating the tree to produce an abnormal growth, we must necessarily destroy the equilibrium of its economy and consequently weaken its capacity for producing fruit.

We can give as an example the second crop which many of our pears trees produce if the previous Summer has caused this second growth of wood. The terminal bud often changes from wood to fruit; it blooms later than the fruit buds formed at the proper season, and produces a diminutive fruit.—*Augusta, Ga,. Farmer and Gardener.*

THE APPLE CROP.—The Detroit Free Press of the 25th says: The apple crop is now the excitement. At Dowagiac there has already been shipped nearly 5000 barrels. Other fruit towns have shipped from 2000 to 6000 barrels, and the shipping of winter apples has just begun. They are now paying in different towns for fall fruit from $1 to $1.50 per bbl; for winter apples $1.50 to $2. In some of the towns there is not a full supply of barrels. A few of the heavy fruit dealers have been obliged to start cooper shops for their supply of barrels, and a very large amount of winter apples will not be shipped in the season of gathering for the want of barrels, which are now selling for 40 and 50c. Thus far every shipment of fruit to the Eastern States has caused larger orders to be sent for the superior Michigan apples, and although the crop is the largest that the State ever produced, they will all be wanted east or west.

THE IONA GRAPE.—Dr. H. H. Farley, of Union Springs, N. Y., has found the quality of this fine grape much improved by grafting on other strong-growing sorts- Other cultivators have noticed the same effect.

The Kittatinny Blackberry.

A corrospondent of the Western Farmer says he has fruited thirty distinct varieties of the blackberry, and that "no other variety is worth a moment's notice in comparison with the Kittatinny." He measured several berries that averaged an inch and a half long, four inches in circumference the long way, and two inches and a half the shorter. He finds one great requisite for success is *not* to cut back the canes in spring, as they never furnish more blossoms than they can perfect in fruit. But thorough pinching back the previous season is of great importance. About New York city, we are told that the Kittattinny loses its bright color in marketing; and although it is very productive and the berries are large, juicy and delicious, it cannot compete at all with the inferior but more showy Wilson and Rochelle. Both of these latter sorts prove of little value to us in western New York, always winter killing badly, the Wilson especially.

Seedling Fruits.

"Plants propagated by buds, as sugar-cane, potatoes, and fruit trees, are *peculiarly liable* to constitutional weakness, and are *less able than seedlings* to endure rough treatment in violation of the laws of vegetable life."—*D. Lee.*

The above fact is, I believe, universally admitted, but it seems to be lost sight of in the present *rage* for multiplying varieties, and consequently the weakness and diseases of plants. It is suggestive too as seeming to point out an opposite course in which more gratifying results may be reached. I move the question then. Can our fruits, any of them, be propagated by seed and hold true in every case to the original? and, if so, which of them may be propagated? In reply we want *facts.* And being the mover of the question I will set the example by giving the following: Some thirty years ago my wife's mother, taking a liking to the fruit of a neighbor's peach-orchard, took home a quantity of the stones from which her husband raised a number of trees, all of which upon fruiting, proved true in every respect to the original. Time wore on, and from these trees another generation of trees was produced; and again all were alike, and true to the first parent tree. No variation in any respect has been discovered in tree or fruit—*Cor. Southern Gardener.*

The California Fruit Market.—We glean the following from the California *Horticulturist* for Sept:

The second crop of Figs is now coming in plentifully. The first crop generally produces the largest specimens. The brown Ischia is the most delicious species in flavor, and preferred to the blue or black varieties.

Amongst the Peaches one of the juiciest and best flavored is the old and well known Heath Cling. The large and beautiful late Crawford Cling is plentiful now, and is rich and very juicy.

The Seckel Pear is mostly small this year, owing, probably, to too heavy crops and want of thinning out.

The Belle de Flanders Pear is, on the contrary, very large and fine. This Pear is very different from the old reliable Bartlett, lasting but a short time from its more tender and delicate texture.

The Gravenstein is now the most popular Apple on the stand. It is of second quality. Its color a bright yellow with distinct red and orange stripes, and very handsome.

The Kittattiny Blackberry is in market, a large, richly flavored fruit. It is a late kind.

Mention is made of fifteen immense, perfectly formed, and uniformly sized pears, on a length of limb measuring sixteen inches only.

A correspondent of the *Country Gentleman* says if copperas and saltpetre water is used around pear trees, the trees will show the effects in a large yield of fruit. He tried this on a Bartlett pear tree that had yielded no fruit for two years previous; that very year it yielded 155 large, fine pears, and the following year 250 large, fine ones, and it is still doing finely. If pear trees want iron which most soils are deficient in, sulphate of iron or copperas is a good way to supply it.

Cause of Peach Rot.—On this subject Dr. Spalding, St. Louis, Mo., says he would lay it down as an axiom, that peach rot is caused by breaking the skin of the fruit at or near maturity. Previous to that, if it is done when the fruit is small and unripe, it does not rot, but if the skin is broken near the maturity of the fruit, the rot is sure to follow. The only difference between its being done with a prick of a pin or the puncture of the curculio, was the difference there was in the puncture itself. He thought that root-pruning would be no possible remedy.

Over-Feeding Grape Vines.—The London Gardener's Magazine says: "If there be any one prevailing fallacy in grape culture which we should always be on our guard against, it is, without question, the tendency to afford the vines more nutritive aid than they can appropriate, and we may be sure of this, that many more vines are injured by excess of food than by deficiency. In the vegetable kingdom the same law prevails as in the animal; it is not the quantity o the food taken into the system which affords nourishment, but the quantity actually digested."

The Vineyard.

Vineyard Work for November and Wine Grapes.

By the Associate Editor.

The work this month will be but little different from last. Vineyards may now be planted and much time gained over spring planting. Set your vines of all strong growing kinds as Concord, Ives and Norton 8 feet by 8 each way. Vines not set out should be well heeled in for winter quarters. This is an excellent month to prune your vines; prune long, for it is better to have too much wood than too little, for the quantity of fruit can be reduced at the first summer pruning after all danger is over. This advice would have saved us last season many hundred dollars. Cuttings should also be made and planted out or well heeled in before they dry. Layers not yet taken up should be attended to at once before the ground become frozen.

ESSENTIAL QUALITIES OF A WINE GRAPE.

The Concord is still the leading grape to plant for market, and will be no doubt, for years to come but we fear it will never become popular for wine from the present system of wine-making. Wine made from the Concord when it marks on the must scale 75 to 80 degrees, makes too harsh and unpalatable wine to ever become popular, although, some contend it can be made so by the addition of sugar and water. We have no faith in such a system. If wine were made up simply of sugar and water, that method might be correct; but this is not the case, for when you reduce the acid by water you reduce every essential principle of the grape, and the result is you have a fiery wine without aroma and boquet. The Concord being too harsh for a delicate wine, it must be grown on a suitable soil and location and thoroughly ripened to make a good wine. This season our Concord must marked 105, Ives 109, and Norton's Virginia 129 degrees. By obtaining must of a high saccharine quality we reduce the acid and increase every essential principle in like proportion and give age, smoothness aroma and high boquet to our wines. The art of wine-making is not in finding a grape possessing *all the essential qualities*, but in blending in a proper proportion all the good qualities of the different grapes to give the proper quality and aroma desired.

This is wherein we have failed in meeting the demand of a refined taste with our American grapes. Wine-making is no more natural than cooking. We mix, season and cook our food to make it palatable to our taste; so we should mix in various proportions our different grapes to make a delicate, pleasing, boquet wine.

We want no rough stimulant or harsh medicinal wine for general use in a refined age.

Culture of Grapes in Graperies, No. 2.

By S. J. Parker, M. D., Ithaca, New York.

In our article of last month we spoke of some of the plain features of growing grapes under glass. We did not overpraise the flavor of foreign grapes. *Flavor* is the general term for the strongest taste in a grape; *aroma* is the second or surprise taste, that charmingly comes in after the first pleasurable sensation is over. In both of these respects the best kinds of foreign grapes exceed all native grapes. We are sorry to say, much as has been done for American grapes, we have none to compare with Muscat of Alexandria, that large old grape; or with Chasselas Masque, or Must-Chasselas, which, though liable to crack open, yet should be in every grapery, or with that grape now expelling by its superior excellence the old Black Hamburg, namely the *Muscat Hamburg*. These are samples of sweetness, flavors and aromas of the highest value, and we would have every grape grower learn in his own grapery what they are. They are educators of aromas and flavors. What varieties may be made tastefully to ornament the grounds of any mansion, can be seen by any one of numerous designs we could give. But they are somewhat costly, though beautiful.

They would give us very neat lines of beauty in the shape and arrangement of glass work, an effect

of fine architectural minds, and the whole commend themselves to every lover of good building. If criticism be indulged, it would be to say that the cornices at the ends are often represented as made of wood, and as being as wide as one of the frames of sliding sash in the roof. Now the sash frames are at least two feet wide, so that the shadows of the cornices falling at all times on a portion of the vines, cutting off so much sunlight must act to the prejudice of the practical utility of the house. The same remark applies to the projection of the eaves of the house; they also cut off too much sunlight. These, it is believed, are faults, even though the owner says his vines are in an admirable state of health, and bearing fully. Theoretically the eaves of the house should never be over two feet from the ground. Practically six or eight feet are better. By theory all distances over two feet are lost space, for the perpendicular sides of the house never fruit well, and the elevation of the roof above the border or soil inside of the house is a violation of the inflexible rule that *sunlight through glass acts in the best manner only a very small distance from the glass*, a foot or two at the furthest, rendering healthy vegetation a distance from the glass impossible. Still in the design just given, the only greatest loss is in time for the vines to get vigor to bear above the eaves, a fact too well proved by experience to admit of a doubt, however the few clusters of the few first seasons may flatter the beginner into the hope that high perpendicular walls are advantageous. If while requesting architects to keep the cornice of the grapery low, and make the roof large, they say they must have room for the display of their art of the beautiful, the reply is very true, but not at the expense of the vines and fruit. One thing is certain, either the mass of grape-growers do not know how to fruit year after year on the perpendicular sides of the house, or the vines will not set their fruit and ripen it well there, and if the latter is the fact, the architect must bow to Nature, and not Nature to the architect. And in fact, a compromise must be made. Now a steep roofed grapery gives rampant growth at the top of the house, *a greater evil* than high eaves.

It would be well could two secrets of grape-culture be whispered in the ears of professional architects of graperies, so that they might never forget them. One is, *the whole house should be of glass*, if possible, without a single dark shade no matter how small. The other is, *since the support for the glass must be made* of opaque substances, that cast a shade more or less to the injury of the vines, *make them as small as possible*, and in the varied line of beauty in which these lines of support are worked, and by them let the architectural ornament be given; except on the north side of the grapery, on which side or end alone put heavy wood ornament, loading this with entablature, heavy, high-wrought cornice, carved wood, marble, alabaster, or other figures, but be so kind as to let the sunlight alone on the East, South and West sides or ends. And if you cannot satisfy your taste for architectural ornament otherwise, select the site of the grapery, so that from the cottage or mansion, the road or avenue, the town or landscape to be adorned by your skill in the vinery, this North end alone shall show, cutting off the prospect of the rest of the house by trees or other objects, so arranged that while they are not too near the vinery they may accomplish the purpose. Bear in mind also that you cannot represent glass on paper, but that glass in the sunshine amid foliage needs little besides it own lustre. There may seem to be one more step than is needful in what has just been said, but the sins into which the wealthy have been led unawares, as well as the ruined vines, tortured trees and plants that have suffered in silence these many years in many a vinery and green-house, call for an administration of justice by some kind of remark.

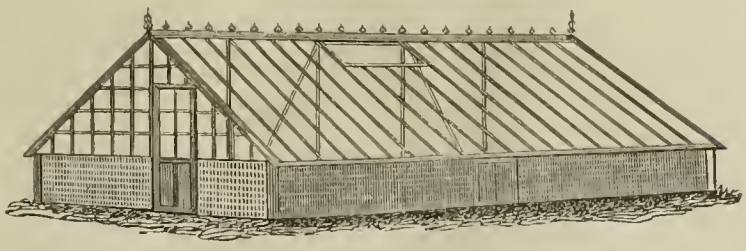
Another reason for calling attention to such graperies as just named, is because they are often represented as standing on a mound, thus giving two results of value, the elevation of the house into better sunlight, with a happy, artistic effect, and for the reason of a border which is thus perfectly drained.

But as this article is written rather for the humbler citizen, in contrast we give a "cheap" structure, copied from the plan of Mr. A. C. Hubbard, of Detroit Michigan, who says: "I planned and built it myself, as I had leisure and fancy in the winter season. The materials did not exceed $65. It need not cost over $120." A very reasonable outlay for a house that must be about 12 feet by 20, if his plan is understood, and should be 20 or 22 feet wide and not less than 40 feet long, where the site admits of these dimensions.

This, if made as it should be, will give for one dollar as much as ten, or even fifty dollars, in the costly built grapery of wealth. That is, foot for foot of glass, will give as large, as high-flavored, and as many clusters of grapes as in one of elaborate architectural finish, and may have elements of success and facility in taking care of it not found in many others. Doubtless it looks as a series of black lines on paper, for that is all there is of it: but when amid trees enlivening a landscape view, it is a thing of beauty of life.

Another might be given—a gem on paper—a sample of the etherial lightness of iron sash. It would show that a grapery may be beautifully

Fig. 1.



graceful without a load of so called architectural ornaments.

With these examples to introduce the subject, the question may be asked: What is the best grapery? Or, to begin at the foundation, How can one best build a grapery? The reply is not difficult.

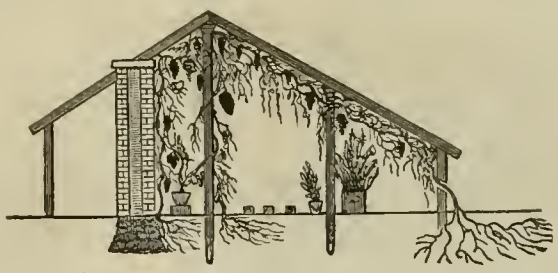
Select a spot, which, while pleasing to the taste, has the best sunshine, with as good a defence from the prevailing cold winds as can be commanded. At the extreme South this rule may possibly need to be reversed and the action of winds sought, for the good of the vines. Let there be an open space about the site, free from trees, dampness, or cold currents of air descending a ravine, or any other source of cold or mildew. Let there be no tree within one hundred feet of the house. If trees cannot be avoided let them be on the North side of the site, and let there be at least ten feet from the ends of the branches to the house. On all other sides let not even a favorite shrub remain, as experience has shown mildew may come from it when least expected. Select the dryest, sandy loam, a sheltered hillock or top of a roll or swell of land, a few feet higher than the ordinary level; reference being had also to the conveniences of an abundant supply of water, which if possible should be from a running, *never failing* spring, requiring no pumping or artificial manual elevation. Do not, on any account, take the old plan of digging in the hillside and putting the vines in a sort of cellar, unless it is designed to force the vines by artificial heat through the winter months, nor then if the forcing does not commence before the first of February. From November till March the cellar excavation and cold stone wall, that can never be heated, may absorb less heat than the zero air and Northwesters through the glass. Having selected the most suitable spot, commence by digging down a certain space, say two feet, and filling in loose stone to secure perfect drainage for the border or soil, and if necessary, make a drain from the bottom of the excavation to any point that will keep the stone drainage free from water. If the excavated earth is not fit to use as soil for the inside of the grapery, pile it outside of the excavation as a raised mound; but if it is good enough for the border or soil inside of the house, then, mixing it with lime, manure, and compost, pile it on top of the loose stone, with which your excavation is filled, making the inside soil as you want it to be. This will be more perfectly understood by the outline sketch, fig. 2.

In this the excavation is seen to extend both within and without the house, as far as the mound to be raised reaches, taking for granted that the soil needs only the special fertilizers to make the border; so that the stone, coarse gravel, or sand, broken brick or other drainage material, are filled in to the level of the natural surface of the ground, or a little above it, and the replaced earth is put over the stone or other filling mingled with the fertilizers, the work being done by sections for the sake of economy. But if the soil of the site be not suitable for the border, then pile the earth outside of the house for the mound, and do not dig so deep nor so large an excavation, as earth will be needed only for the outside mound, filling in draining material as before, and bringing decayed turf or other good soil from elsewhere to fill the inside of the house, composted with rich manures. By this plan it will be seen, there is the dry mound above the general surface level, thus insuring dryness and sweetness to the soil, elevation into a better sunlight, with conspicuity of the house, and also a well worked, rich border, entirely under command.

Fig. 2.

This plan further gives the choice of making the outside mound a part of the border or not as desired, though it more than hints that such outside border had better not be made, under all circum-

Fig. 3.



stances; as for example in those States with severely cold winters. But more of this further on. In case you have, as in fig. 2, only an inside border, notice at this moment that the outside mound must be so wide as perfectly to exclude frost from entering the house from the edges or grass sloping banks; that is, it should be over three or five feet wide, and as much more as your taste demands, but not wide enough to defeat drainage or dryness, as a very wide outside grass plot might do.

On the question of outside borders there are many opinions. Probably the history of the grapperies will show that the germ of the idea grew out of the fact that vines ripen further North when trained against stone or brick walls. The wall was next protected by glass, close to the vine and wall; then the glass was removed further from the wall. At last the grapery took the shape of a lean-to structure against the wall, a form it yet inflexibly retains in the minds of many. And all this while the border was considered to be next to, but separated from the wall and extended some distance from it; and as the glass and vines were removed further from the wall in widening the house, so the border was removed further and further, being all the while kept outside of the glass work. Hence the idea that an outside border is absolutely necessary in the estimation of some. But to American taste walls are not pleasing and the climate destroys them, and thus the idea is of standard trees, and bushes and open trellis, roomy out door exposure; and hence, when we find a span-roof house and inside border, it suits our natural taste, as more like nature, and as nearly as can be like a Southern climate artificially created under an untrammelled roof of glass. Now, to add to this, an outside soil or border, for the roots of the vine to run in, is to say the least, an unnatural thing, and we would at once say so, had not the amplest experience shown that the original idea, namely, *an outside border should in all possible cases be used to the complete exclusion of all inside borders, whenever it can be done*, even if the labor and care of the entire border be greater than that of an inside one.

To see the more readily the truth of these remarks, please examine fig. 3.

This is a lean-to, English style. The vines are planted outside of the house, and led through holes in the wall, and trained up under the glass. There are lesser vines in the inside border trained up the supports and the back wall of the house. Apparently it is a strange anomoly to have the roots of Southern, and of some varieties, almost tropical vines, exposed to the cold air and rains of the North, with the further recommendation of a border, from twenty to sixty feet wider than the house, and wholly outside of the house; which certainly is as far removed as possible from the dry, warm soil and air of their native climes. Though the certainty that the roots will run to the extent of such outside border cannot be doubted, yet the propriety and necessity of their doing so might be questioned had not facts of late years shown the outside border the best.

So it is summing up the best practical good sense of the land to say: In the extreme Northern States build the walls of the grapery down to the stone drainage, so as to completely cut off the passage of the roots outside of the house; and enrich to a higher degree the soil inside of the house, and simplify this culture by supplying them all the elements of growth. South of this extend to some degree the border outside of the house, as recommended by English authors, and the more so as you go further South, until the vine stumps and roots are placed entirely outside. But it deserves to be repeated that at the far North, as experience has shown or will show, the vine succeeds better when wholly within the house, and thus perfectly under command; an impossibility with a cold, uncontrollable outside border.

Grape Harvest in France.—The vintage has begun in the department of the Rhone. In the vineyards of the valley of Saone the vintagers have begun to gather the grapes. The ripening of the fruit is perfect, and the wine will be of the first quality; but the quantity will be small, for half the vines, and especially the older shoots, yield hardly any product this year. In Le Gard the gathering is going on with great activity. The grapes have ripened this year very unequally, probably on account of the great change of temperature through the summer. Where the foliage is thin the grapes were schorched by the extreme heat at the end of July, but on the other hand the vines crowded with leaves have ripened their fruit too slowly.

The Vegetable and Flower Garden.

Management of the Hot-Bed.

By W. H. W., Hartford, Conn.

Ed. Pomologist and Gardener:—The hot-bed being formed, as heretofore directed, the next step is sowing the seed. Inexperienced gardeners are apt to hurry the seed in too soon, and thus make a failure. If you will test the bed with the thermometer, after the sash has been on a day or more, you will find it will indicate 100 degrees or thereabouts; this is too hot for most vegetable seed, and will destroy vitality. In about three days the heat will have subsided to about 90 degrees, when it will answer to prepare for sowing the seed, and there will be no danger of failure to germinate from too great heat. In our directions, last month, I think I directed to place the sash on, and let the heat rise and begin to subside before putting on the prepared soil; this soil should have been prepared in the fall previous, and placed under circumstances convenient to obtain when wanted, and not be in a frozen state; it should be rich or made so by mixing one-third well rotted fine manure with it when preparing in the fall. The mere sowing of the seed is as the fancy dictates, yet the more handsomely it is done, the better it is done generally; the handsomer the thing the more highly it is prized and the more care it receives, although in reality the beauty may not add to its intrinsic value. Remove the sash and make little drills from back to front of the bed, of depth corresponding to size of seed, about five times the diameter of the seed, and about one inch apart—recollect the hot-bed is not to mature plants in, only to start and forward, usually; these drills should be straight and equidistant; drop your seeds along these drills, twenty to thirty to the inch, better too many than not enough, label each row and different varieties and cover carefully, compressing the soil over them, and you are ready to put on the sash again. Our work has now but fairly begun, for the bed must have constant attention till the plants are all removed. The soil must never be allowed to get dry or be kept too wet, and the plants must always have as much air as they will endure, while they must be protected from cold and inclement weather. The temperature should not be allowed to fall below 55 degrees, nor go higher than 80 to 85 degrees at any time—covering the bed with mats nights, shading and ventilating during sunny, hot days. In giving air the sash are raised, either at the back or front, on wedges, so as to adjust them at different heights, or they may be slid down from the top; sometimes it will be necessary to remove them entirely when the plants obtain size, during mid-day. Often a few moments of neglect between 9 o'clock in the morning and 3 in the afternoon will scorch and destroy the plants. Watering should be done after the sun has passed the meridian—two or three o'clock—from a fine rose watering-pot, with tepid or warm water, soft rain water is best always. As soon as the plants come up fairly, thin them to four to an inch, stirring the soil a little, and keep *clean* of weeds; and at all times, do not allow the sash to be off too long at a time while the plants are small and tender; give air as they will endure it, to cause them to grow strong, hardy and green; air is the life of the plant. In about a month from the time of planting the seed, the plants will entirely cover the bed, and begin to be somewhat drawn; you must now have a cold bed, or nearly spent hot-bed, and remove the plants into it, setting them four inches apart each way; water them lightly and shade for three or four days, and also cover to protect them nights. In these beds the plants must be hardened off as fast as they will bear so as to be ready to transplant into the open ground as soon as the weather will admit and the plants will endure it. Recollect constant, careful attention is required to succeed with the hot-bed.

Culture of Bulbs.

The treatment of bulbs is simple and the results so satisfactory that it seems exceeding strange that they are not far more generally cultivated. Not in one garden in a thousand, even those of some pretentions, do we see a dozen good Tulips, and those who invest a dollar or two in good hardy Bulbs are pretty sure to eclipse all their neighbors. Some care and skill are often required to cause flower seed to germinate, but with a little care in fitting the soil, and in obtaining sound Bulbs of fine varieties, the most gratifying results are almost certain with hardy Bulbs. The lack of attention to the culture of Bulbs is partly from a mistaken

idea of the great care and skill necessary to their proper culture; and this impression is strengthened by many writers on the subject, who seem to think there is a great show of wisdom in recommending the most difficult and complicated methods. Those who have been discouraged with the formidable array of directions, which only a professional florist could practice, need not despair; the gay Crocus, the fragant Hyacinth, the brilliant, dashing Tulip, can be grown, and well grown, by any amateur—by any farmer's wife or daughter—and may decorate every humble cottage garden. A rod or two of ground, a little taste, and some attention to the simple directions given, is all that is needed to ensure success.

Another reason why bulbs are not more cultivat- is that they must be planted in the *Autumn*, and the majority of amateur gardeners do not wake up to the importance of providing plants for their gardens until the spring is pretty well advanced; and then, when many of the bulbous plants are in full flower, and should not be moved, often send their orders. Those who wish a show of bulbous flowers in the spring must *make their selections, prepare the ground, and plant in the autumn.*

Any fair garden soil will grow Bulbs well; but it must be well drained, so that the water will not lie on the surface for any length of time, or the Bulbs will be likely to rot. If the soil is poor enrich it with well-rotted stable manure, or with surface earth from the woods. Cow manure is excellent for Bulbs. Manure should be mixed thoroughly with the soil; and if the ground is stiff and the manure fresh, it is well to put a little sand around each Bulb at planting.

The soil should be dug deep; and if stiff from too much clay, an addition of leaf-mould scraped from the woods, or a liberal dressing of sand, will be of great benefit. After planting, and before winter sets in, cover the beds with a good dressing of leaves—say five or six inches in depth, or more. Over these throw a little brush, or boards, to prevent blowing off. If the leaves cannot be obtained readily, coarse manure will answer. In the spring, as soon as the hard frosts are over; rake off the covering. Nothing more is required except to destroy

the weeds as fast as they appear. More specific directions, including planting, the distance apart, the depth, and the treatment after flowering, will be given in the remarks introducing each family.

CULTIVATION OF BULBS IN WINTER.

It is in the house, in the winter, that Bulbs afford the greatest pleasure. A few dozen Hyacinths, Tulips, Crocuses, &c, will furnish useful recreation for months. From the planting of the Bulbs, until the last flower has faded, there is continued excitement. The unfolding of each leaf and bud is watched with the most pleasurable and unabated interest by all members of the family, and by the exercise of a little taste a great deal of pleasure can be derived from the cultivation of Bulbs in water, and at a very little cost. The simplest and cheapest form of a Hyacinth glass, is shown at *D*. A form preferred by some is seen at *B*. The most expensive is *F*, a kind of triple glass, holding three bulbs. The Duc Van Thol may be grown in ornamental pots, like *A*, or in baskets or boxes of any form. A very satisfactory arrangement is to obtain a common shallow box, and ornament it with sticks or bark, somewhat like *E*, and fill it with sandy earth mixed with moss finely broken up. Then plant a row or two of Crocuses on the outside, and fill up with Tulips, Narcissus, Hyacints, &c., making a miniature bulb garden. After planting, the whole can be covered with moss, such as found on logs in damp woods. The plants will find their way through the moss.

Hyacinths should be planted in the garden in September, October or November. Make the soil deep, mellow and tolerably rich, and see that the water has a chance to drain off. The beds should be narrow, so that all parts can be reached from the alleys or walks. Set the bulbs five or six inches apart and four deep. Before winter sets in, cover the beds with leaves or manure to help keep out the frost. This should be removed as soon as hard frosts are over—in this latitude, the middle of March. For beds of early flowers on the lawn, nothing excels the Hyacinth. A very pretty arrangement for a round or oval bed, is one or more rows all around of white, then red and rose about an equal number, and the centre filled with blue. Where beds are small and so near together that they can all be seen at once, it is well to fill each one with a seperate color.—*Vick.*

ARCTIC PLANTS.—It is said on the White mountain tops, Arctic plants are numerous, which are found dowhere else in this country. It has been discovered by a careful botanist that New Hampshire has 1440 flowering plants and 410 of the lower orders—in all 1850.

Entomology.

DR. S. H. KRIDELBAUGH, EDITOR, CLARINDA, IOWA.

☞SEND IN THE INSECTS.—Dr. K. is chairman of the Committee on Entomology for the State Horticultural Society, and would take it as a favor to be furnished with specimens of insects from the various localities of the State, by mail during this year. Those sending will please state all they know concerning the habits of the insects sent; what they are found feeding on, etc.

Bug Friends of Horticulturists.

DR. S. H. KRIDELBAUGH: I send you to-day some bugs that I have classed as belonging to the Lady-Bug family, and consider them friends of the horticulturist. A friend of mine near this place, a fruit grower, asserts that this insect has done considerable damage to his grapes, and the vines. Please let me hear from you in the *Western Pomologist.*

GEO. WALTERS.

Ft. Scott, Kan.

REMARKS.—Your specimens came to hand in very good condition, and are known among Entomologists by the generic name—*Coccinnella*, and the specific name—12-*nota*—12-SPOTTED LADY BIRD, a beautiful red beetle with twelve small black spots on its upper surface or back. A long tried and true friend to the fruit grower, the gardener and the farmer. It is a cannibal feeder, living on other small insects, plant-lice, aphis and the eggs of other insects, such as *Doryphora* 10-*lineata*, the COLORADO POTATO BEETLE, et al. It is not a vegetable feeder, and your friend is grossly mistaken concerning its injuring grapes and other vines. A microscopic examination of the injured plants would have developed very small insects on them which were affording an abundance of food for the little red and black friends he complains of, who were doing good service for him.

Another Orchard Enemy.

DR. S. H. KRIDELBAUGH: In this package you will find inclosed an insect which I find upon my apple trees. They are cutting off the young shoots. I first observed them on the 21st of September. Will you tell us through the *Pomologist & Gardener* what they are and how to get clear of them?

I. M. HUGLIN.

St. Charles, Madison Co., Iowa.

REMARKS.—Your insects sent with cuttings of apple-tree twigs came to hand all right. The insects are the COMMON TWIG BORER—*Bostrichus Bicandatus*, of Say. For furthur information see answer to A. W. Howard, of Yankton, Dak. Ter., in *Pomologist.*

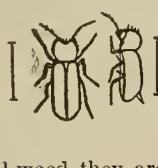
Is it the Twig Borer?

Ed. Pomologist and Garlener:—I send this mail—incased in a cylinder of wood—specimens of a "*critter*" that is making sad havoc with apple trees at this late season. They attack them by boring into the heart and following it up or down sometimes for several inches. They have every appearance of the limb borer (*Bostrichus bicandatus*) but I have never learned of them doing damage so late in the season. They did not make their appearance till quite recently and are thicker now than ever; any information, or especially any remedy, will be thankfully received through your columns or otherwise.

A. W. Howard.

Yankton, Dakota Ter.

Remarks.—Bostrichus bicandatus, of Say,—*The Common Twig Borer.*—This Beetle is remarkable for boring green wood in its perfect state, and not in the larvæ state. Almost every orchardist, particularly in the valley between the Alleghany and and Rocky Mountains, is acquainted with the results produced by the Twig Borer, done in the months of May and June generally, in the apple twigs about the size of a common goose quill. All of the borers, we believe, that infest trees or shrubs, in the larvæ state, bore with their heads upwards; this one however, in the perfect state bores usually head downwards, and it is generally considered that it does not do this kind of labor for the purpose of propogating its species, but for food and protection. They have been found in the sap-wood of forest trees in mid-winter "alive and well," in their perfect beetle state. When thus found, they are generally in pairs—a male and a female. It is thought by some naturalists that the insect thus passes the winter, but we have never before heard of them attacking the bodies of apple trees, but at this we do not marvel, especially if the trees are one, two or three years old nursery stock.



Their mode of breeding is yet to be discovered, consequently no directions can be given to prevent that mode of spreading. The only means we know of to check them is to cut off and burn all wood they are known to infest, which may be readily distinguished by the holes they make where they enter. In small twigs of the apple-tree and the grapevine, we know they enter at the axil of a bud and bore downward one or two inches. This insect is not found in the New England States, or New York, but exists in all the Western States. The accompanying engraving gives a back view of the female, and a side view of the male, the lines on the left and right respectively showing the natural length of the insects. Besides being the smallest, the male has two hooks or small horns on each side of its tail. Color brown.

Miscellaneous.

Burying Trees---Not Heeling In.

Now is the time for taking up and burying trees for spring planting. There are so many advantages gained in doing this, it seems strange to us that so few obtain their trees from the nursery in the fall instead of putting it off till spring. These advantages have been so often enumerated that we will not repeat them at this time. We have practiced burying decidious trees—both forest and fruit—for many years. If the work be done right, at the right time, and in the right kind of soil, results will be uniformly satisfactory. Heeling in, which strictly means to bury the roots and leave the tops wholly exposed to sun and wind, is often attended with injury and loss of many tops. Bury root and branch in a sloping position, with the roots from one to two and a half feet deep, with a slight mound of earth raised over them, and the tops just covered with the dryer soil. Throw a few old boards or straw over the whole pile after the ground is frozen, to prevent alternate freezing and thawing. Let the place of burial be such that water will not accumulate around it. Trees thus protected from the severity of our Western winters, when taken from their winter quarters and properly planted out, will start out more freely, and make more vigorous growth than if left standing in the nursery and removed in the spring.

Polk County Fruit and Horace Greeley.

At the New Jersey State Fair which closed on the 23d of September, Mr. Mark Miller of this city, was awarded the Silver Medal for samples of fruit exhibited by him. It will be remembered that Horace Greeley, in his speech delivered at the late District Fair here, intimated that if the Pomological Exhibition lately held at Richmond, Va., had been held elsewhere, Iowa would not have carried off the first prize. We wonder if it would have made any difference in Horace's opinion if it had been held in New Jersey? The New Jersey people seem to think as much of our fruit as the Virginians did, Horace Greeley to the contrary notwithstanding. In the report of their State Fair, by the Newark *Daily Advertiser*, we find the following mention of Mark Miller's fruit:

"In fruit, Mr. Mark Miller, of Des Moines, Iowa, has taken a Silver Medal for his Magnificent specimens of Iowa fruit, which, in the opinion of the judges and Mr. T. P. Quinn, the Superintendent of this department, could not be excelled."

Now it may be a question whether "the judges

and Mr. P. T. Quinn," above referred to, know as much about farming as Horace does, but we think there can be no doubt but they are equally well posted with him on Pomology, and by the time we get a few more notices similar to the above, from other State Fairs in the East, we will begin to think even H. G. may be a little out of his reckoning, when he says that we of Iowa are not the first fruit growers of the Union.—*Daily Iowa State Register.*

St. Louis Fair.

We attended the Fair of the Agricultural and Mechanical Association at St. Louis, which commenced the 2d day of October and continued until the 7th. This institution we have before referred to as being beyond any description in the arrangement of its grounds, the amount on exhibition, and the number of persons attending it. It might more appropriately be called a National Fair, from its character and attendance. It is one of the institutions which has good officers, is well conducted and has the confidence of the public, and consequently is always well attended as it should be. It was estimated that there were on the grounds Thursday, the 5th, over one hundred thousand persons, and sixty thousand were seated in the magnificent amphitheatre. It is not our purpose to give a description of the numerous valuable articles exhibited, but simply give a few notes on some of the horticultural products.

Illinois, Missouri and Kansas exhibited fruit which for size and beauty were most magnificent. The Kansas collection was under the charge of Dr. J. Stayman and Wm. Tanner, delegates of the Kansas Immigration Society, who had 120 varieties of apples, which for size and beauty attracted universal attention; three specimens of which weighed 76 ounces. Mr. J. Cadagan, of Leavenworth, exhibited two

A diploma was awarded to Kansas for the best exhibition of apples, with the following remarks from the committee:

"After the Committee on Fruits had completed their examination on Monday and made their awards of premiums there was placed on exhibition by Dr. J. Stayman and Wm. Tanner, Esq., committee on behalf of the Kansas Immigration Society, 120 varieties of apples, which for beauty and size we have never seen equalled."

Bush & Son made a fine display of grapes, consisting of 30 varieties. Among those the Herman, Cynthinana and Croton were fine. The Park of Fruits was an interesting exhibition, having a plat of its ground and its surroundings under the management of C. H. Hazen. The plat shows about two hundred acres of ground, including the hotel, which is to be built. In the floral department there was a fine collection of rare plants, which with the boquets there displayed filled the air with perfume.

Blair Brothers, of the Lees' Summit Nurseries, Jackson County, Mo., made a very fine exhibition of fruit and ornamental trees, from their extensive nursery grounds. Before returning home we paid their nurseries a visit, and found their grounds embracing about 160 acres in the different kinds of stock all in excellent order and of the very best quality.

ASSOCIATE EDITOR.

Those Canker Worms.--What of them?

ED. POMOLOGIST AND GARDENER:—In Aug. No. of the *Pomologist*, 1870, I gave you an account of a worm on my orchard trees, and asked if it was the Canker Worm, and if it would visit me next year. You answered "yes, you have the Canker Worm, sure, and you may look with certainty for its re-appearance next season, unless you adopt some method to head it off."

According to instructions I took strips of tarred paper six to eight inches wide, wrapped around the trunks of trees, fastened with small tacks, and covered with printers' ink. (Barnum the great humbug says he owes his great success to printer' ink, and why not nurserymen?) I commenced this operation about the 25th of March. I looked over the trees having the paper on every few days, and as the ink became dry I would daub over again. I kept this up until fore part of June, and never saw but one as I thought that looked like the bug I wanted to "*kotch*," and she was safe in the ink. The 23d of May was first seen the small miller or moth that I suppose to be the male. There was not one thousandth part as many as last year, nor did they stay near as long. My trees have entirely escaped, and I examined them every few days and have not seen fifty Canker Worms during the season, while last year there seemed to be tens of thousands on each tree.

What is the cause of their disappearance? It was not the heading off, as I did not band all of my trees. I left some trees around in the orchard to prove the heading off, and they escaped as well as any. Did they hatch out and climb up last fall and get "*kilt*" by the cold, or are they laying over like fourteen year locusts? It cost me about $30 last spring to "head them off," and I do not want to repeat unless it is positively necessary.

CHARLES WATERS.

Springville, Vernon County, Wis.

REMARKS.—Why the Canker worm did not fulfil our prophecy is a puzzle to us. We have in no case ever before known it to fail of putting in a second appearance at least. It is not uncommon for it to mysteriously disappear from a locality after a stay of four or five years.

The Peerless Potatoes.

Ed. Pomologist and Gardener.—We of this town of Ithaca, N. Y., have raised in all over two hundred bushels of this new variety. We have baked, eaten and tested them every way, and come to the conclusion that we want no better potato. Specimens weighing three and four pounds, are solid and boil easily to a beautiful mass of mealy nice, flour-like substance. The skin is thin and yet strong, the color white, nothing could be fairer in appearance. They give about double to the acre of most other new varieties. Some new varieties are flavorless. This is one of the best in this respect. It derives its name, and will be when generally known one of the best, if not as its name indicates, the best of all known varieties.

S. J. Parker, M. D.

Ithaca, New York.

Making Vinegar.

The following is the conclusion of an article on making vinegar, on page 250, October No., which was overlooked in making-up. Though the article was very complete without this termination, it would have been better with it:—

Any one at all familliar with the nature of cider knows from experience that when we draw out first from a full barrel in warm weather, the cider is much sweeter and better to drink as a beverage, than after the barrel has been drawn from for some length of time; the drawing out by admitting fresh air simply accelerates the acetic fermentation.

My object in drawing daily a small amount and putting it into another barrel, is to introduce it more effectually to fresh air, and at the same time prevent too much exposure, whereby the alcohol would escape at the same time. If I wish to convert a small quantity of fermented cider into vinegar immediately, I take a vinegar cask, and put ten gallons of good vinegar and a quart of mother, and put in a warm place, and put in a small quantity of cider daily, according to its acidity and its tendency to that condition. In this way I have never failed in making and having on hand a good supply of first quality cider vinegar. It is an old maxim that "it takes money to make money." This maxim is truer of vinegar than of money.

Air, warmth and light are indispensibly necessary to make good vinegar; a well ventilated, dry and warm apartment should not be overlooked; too much exposure to the open air impairs its quality and quantity. The degree of heat necessary is from sixty to one hundred. Vinegar should not be allowed to come in contact with iron in any shape.

The Shakers are putting up a large quantity of grape jelly this season.

Notes and Gleanings.

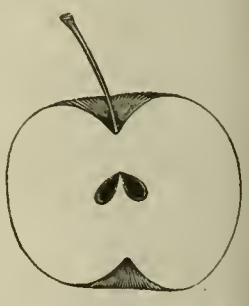
Acknowledgments and Thanks.

From F. R. Elliott, Sec'y American Pomological Society, Cleveland, Ohio, a box of Angers and Orange quinces—the largest and most beautiful specimens of the quince it has ever been our pleasure to look upon. It would be difficult, we think, to find finer specimens of this fruit anywhere. The Angers is much the largest and finest of the two. It is very large, fair, highly colored, and its aroma delicious. Illustration and Mr. Elliott's remarks next month.

From D. W. Adams, Sec'y Iowa State Horticultural Society, specimen apple of the "Dommesta of Bessarabia," grown from a scion imported by, and received from the Agricultural Department two years ago. Illustration and description next month.

From Dr. James Weed, Muscatine, specimens of his seedling chestnut, to which we alluded in September number, page, 227. These nuts are truly of mammoth size in the line of chestnuts—some of them exceeding 1¼ inches in breadth and otherwise well proportioned. The Dr. is now realizing happy results from his many years of experiment with the chestnut. He intends to multiply this new valuable seedling by grafting. The tree has fruited two or three years.

From E. M. Nevins, Nashua, Iowa, a box of seedling crab apples. Fruit very handsome; round, deep red, highly colored, with some marked peculiarities. Seeds small, plump, and so closely encased in the carpels as to present the appearance of being imbedded in the solid flesh. Calyx smooth with no signs of sepals; flesh dark, firm, juicy, and very good. This apple has so little core that it must be extra nice for preserving whole. Mr. Nevins says of the tree:—"Upright, forming a beautiful top; very hardy and productive; bears annually smooth, fair fruit, excellent for canning and preserves."



Sending Scions long Distances.—We published this some years ago in our *Northwestern Farmer*, and it will bear repeating, for there is no better way whereby choice scions can be transmitted the long distances. Put into a glass vial, or bottle of the required size, a piece of dry sponge pressed

to the bottom and saturate it with water. Then drop the scions in upon it and place a piece of wet sponge on the top and seal up hermetically; wrap in strong paper, and they may be sent by mail almost any distance and be found perfectly fresh.

THE CUYAHOGA AND MARTHA. — The Rural World says: "Cuyahoga has produced this season bunches of large berries; color white, tending to flesh color; very sweet and rich; somewhat late. The small berries become quite pink and sweet before the main cluster is ripe, while in most other varietes—the Concord for example—the small berries are quite green when the bunch is ripe and black.

Martha—in fruit, foliage, health, hardiness and productiveness, stands at the head. Berry medium; China white; foliage very distinct and healthy.

A PROFITABLE ACRE.—A California paper says that on Grand Island, near the mouth of Sacramento river, an acre of land was planted to Early Rose potatoes, on the 23d day of February. On the 30th of June he dug 300 sacks worth $1 per sack. On the 28d of July he replanted the same ground, and on the 7th of October he dug 350 sacks of potatoes. The entire cost of cultivation did not exceed $30. Thus realizing from one acre of swamp land about $600.

GOETHE AND WILDER.—These two new grapes appear to give great satisfaction at Hammondsport. A report on them for last year says: "The Goethe has even surpassed the Concord in productiveness, and healthy, vigorous growth. From 350 vines, planted 6x10, in their third summer, consequently bearing their first crop, on the hills, we received 3,127 pounds of splendid fruit. And besides this heavy crop they made an enormous growth of wood, which is now ripe to the very tips, the foliage hanging at the present date (Oct. 19) on the vines green and fresh."

HONEY LOCUST HEDGES.—J. J. Thomas says a very common error in the culture of Honey Locust hedges is in not cutting them back enough. Close pruning is necessary to overcome its natural tendency to an upright and comparatively slender growth. He thinks such a hedge should be cut very near the surface, the second time three inches higher, again four or five inches higher.

SUGAR BEETS FOR HOGS.—A writer in the *Practical Farmer* says that he finds the sugar beet very good to fatten his hogs with. He begins with the beets, and finishes off on corn As the result of his experience, he found that his hogs fattened earlier, with a material saving of corn.

KEEPING SWEET POTATOES. — A correspondent of the Country Gentleman has found that rotten wood, finely pulverized, is the best thing yet. Collect the rotten wood in the summer or early fall; get it perfectly dry; grind or pound it fine, pack your sweet potatoes in it in boxes or barrels, and keep them in a warm room or in the cellar, close up to the floor of the house, and you need have no fear but that your potatoes will be as good in the spring as when you packed them away.

A "WHOPPER," SURE.— The Practical Farmer acknowledges the receipt of a whopping big apple, from Pettis county, Mo. It is described as measuring "exactly eighteen inches in circumference, and weighing two pounds; oblate, clear, bright yellow, without speck or blemish." Missouri is ahead on apples for size. Only think! an apple six inches in diameter. We reckon the measurement of that apple, like some peoples conscience, was pretty elastic.

BIG TOBACCO PLANT.—The San Jose *Bulletin* makes mention of a stalk of Sardinian tobacco which measured 5 feet in hight—some of the leaves measuring 2½ feet in length by 18 inches in breadth. The plant grew from the seed which was put in the ground last spring. The Sardinian tobacco is very strong, and is used largely in making snuff. This growth is a most remarkable one.

MAMMOTH GRAPES.—The Marysville (Cal.) *Appeal* acknowledges the receipt of a bunch of grapes, upon which it says "is one grape that measures four and a half inches in circumference. It has precisely the shape of a tomato, and appears to be the result of a number of grapes growing together, as the outward contour is uniform."

IOWA APPLES AT RICHMOND.—A writer from Richmond to the *Western Rural*, Chicago, makes mention of the collection of 118 varieties from Central Iowa, and adds: "Iowa may well be proud. She received the the prize for the best collection of apples from any State."

PEERLESS POTATOES.—Jeremiah Bodge, of Center Barnstead, N. H., claims to have raised three hundred and thirty and one-half pounds of Peerless potatoes the past season, from two and one-half pounds of seed.

OREGON STATE FAIR, held at Salem, Oct. 9, was a success. The receipts for the first two days alone, was nearly $7,000. The horticultural and pomological department was well filled with vegetables, fruits, plants and flowers.

KANSAS AND IOWA *vs.* VIRGINIA.—The Richmond *Enquirer*, referring to the earnest efforts now being made to attract immigrationt o Virginia, proceeds to illustate the backwardness of that State thus; "Kansas, yet an infant State, and Iowa, not yet in long dresses, send their State fruits to the east to let the people know what they can grow there, and yet Virginia sits to-day with her hands folded waiting for another John Smith to explore her domains."

Not quite so fast, Mr. *Enquirer*. Had the several individual collections of Virginia grown fruits on exhibition at the late meeting of the American Pomological Society been massed, as were the fruits from Kansas and Iowa—Virginia's display would not have suffered with that of any other State represented.

"THE HUB."—The Waukon *Standard*, undertakes to prove that *its* locality is the "Hub" of this little kingdom, if not of all creation. We give it up. Hear it argue the case:

"Iowa took the First Premium on apples at the late National Pomological Exhibition at Richmond, Va. Allamakee county carries off the First Premium on apples at the Iowa State Fair, and Waukon is the town from which they came; hence

WAUKON, IOWA, IS THE BANNER APPLE GROWING TOWN OF THE UNITED STATES."

BOSTON FRUIT MARKET.—The Boston *Cultivator* of a late date says: "Cranberries of the new crop, are coming in plentifully from the Cape and New Jersey. The price is about $10 per bbl. The quality is good, and the crop will be much larger than the average of former years. Apples are coming in freely from the West, especially from Michigan, and are selling for about $4 a bbl. Poor fruit sells for about $2.50a$3, and the best qualities range from $3.50 to $4. The New England crop is almost an entire failure."

ROSE CUTTINGS.—One of the best methods of securing the success of these, says a recent writer is to stick the cutting about an inch deep into clean river sand with properly prepared soil about an inch below to receive the roots as soon as they strike. The clean sand prevents the roots from rotting. A correspondent of the Horticulturist succeeded with this when every other mode failed—and says he does not lose one in twenty.

PURITANS' FLOWERS.—The old-fashioned flowers in the gardens of New England—blue-bells, crocuses, primroses, foxgloves and many others, are wild flowers on English soil. There is something very touching and pretty in this fact, that the Puritans should have carried their field and hedge flowers, and nurtured them in their gardens, until, to us, they seem entirely the product of cultivation.

Cooking Fruits.

CRANBERRY TARTS.—Stir the cranberries with plenty of sugar, but no water, as the berries become beated they will burst, and furnish plenty of moisture. Have ready a fine puff paste, and when the cranberries are quite tender, put them between a top and bottom crust, and bake till a light brown.

BAKED APPLES.—Sour—Put them into a deep baking-pan, sprinkle sugar over and around them; fill the pan half full of water and bake quickly. Sweet—These require a slow fire. A little water in the pan is an improvement, and a little sugar, also, though they are very good without either.

APPLE CREAM.—Boil a dozen apples of pleasant flavor in water until soft; take off the peel and press the pulp through a hair seive upon half a pound of powdered sugar; whip the white of two eggs, add them to the apples, beat all together till it become very stiff and looks quite white.

PEACH TREES IN CALIFORNIA.—A San Francisco paper says that there are 800,000 peach trees in California—enough to furnish one hundred pounds annually to each inhabitant. Peaches sell at about five cents a pound at wholesale—an acre yielding about $600.

LARGE APPLES.—The Oskaloosa *Herald* says: "J. F, Norris, of White Oak township, Mahaska county, had on exhibition at the county fair, three apples that weighed in the aggregate 5 lbs. How high is that?" [High enough.]

MAMMOTH APPLE.—The *Gate City* acknowledges the receipt of an apple grown by Mr. Robert Fabres, near Keosauqua, the weight of which was thirty-one ounces.

A LARGE PEAR.—The Mobile *Tribune* tells of a large Pear grown in that city by Mr. Joseph Cane. It weighed twenty ounces, and was, probably, a *Duchess d'Angouleme*.

WALTER WINE.—Wine made from the Walter grape at Hammondsport, is represented as being very fine.

Thirty bushels of pears were gathered from one tree near Ashland, Kentucky.

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No firm in the United States can furnish so large an amount or so large a variety of Evergreens and Forest Tree Seedlings as PINNEY & CO., Sturgeon Bay, Wis. *Their prices are always below any others.* Send ten cents for their descriptive catalogue, containing 50 pages.

THE POMOLOGIST

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Editor and Publisher, - - *Des Moines, Iowa.*

DR. J. STAYMAN,
Associate Editor, - - *Leavenworth, Kansas.*

DR. WM. M. HOWSLEY,
Corresponding Editor, - - *Leavenworth, Kansas.*

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BY THE ASSOCIATE EDITOR.

This Institution held its first annual Fair at Kansas City, Missouri, October 16th to 21st. It was an unprecedented success not only in attendance, but in the articles exhibited as well as in the receipts. So liberally was it patronized that they concluded to continue it until the evening of the 24th. It was supposed that on Thursday there were forty thousand persons in attendance. Numerous were the reasons for its brilliant success; amongst some were the fine weather and low railroad fare, but the most prominent causes were the liberal spirit manifested and generous premiums offered, conducted by approachable and accommodating officers and superintendents, who understood their business well, and tried at least to please the exhibitors without that dogmatism so generally manifested at agricultural Fairs.

In the horticultural department very much praise was due to the Superintendent, D. L. Hall, who was not only a good officer, but a practical horticulturist, who did everything consistent to satisfy the exhibitors. We predicted that in the fruit department it would be the best ever exhibited in the West, and we were not disappointed. In apples it was most magnificent, even beyond our description in size, beauty, and quality.

The Missouri Valley Horticultural Society, located at Kansas City, represented by the President, Geo. S. Park, of Parkville, Missouri, had on exhibition 350 varieties of apples, 20 of pears and grapes and a very fine display of vegetables. This collection was entered for the best and greatest exhibition of horticultural products produced by a society, and took the first premium of *One Hundred and Fifty Dollars.* This was a fine display in every respect, and was an honor to any society, and no doubt justly won the premium, although it had a strong competitor in the St. Joe Horticultural and North-western Fruit Growers' Association, which was represented by Mr. J. A. Storm and Mr. J. P. Reichard, who exhibited 300 varieties of apples, 20 of pears, 10 of grapes, 14 of peaches, with plums and quinces, crab apples, and 22 varieties of potatoes, and a general assortment of vegetables. This was also a very superior collection of fruit and vegetables, and it was with some difficulty the committee could decide which were the best. Both of these societies had many new, large, handsome apples, worthy some further remarks, which we hope to illustrate and describe hereafter.

Mr. E. D. Brown, of Wyandotte, Kansas, took the first premium of $25 for the best and largest collection of fruit by one exhibitor, and we took the second premium of $10 for a similar entry. Here Kansas comes out victorious single handed, and took both the first and second premiums—she not having competed with the above societies in a general collection. Messrs. Stark & Barnett, of

Louisiana, Missouri, took the first premium for the best collection of fall, and also winter apples, likewise for the best plate of winter apples, which were *Winesaps*. Several other less premiums were taken, but we were unable to find the exhibitors' names.

In the nursery stock, Blair Brothers, of Lee Summit, Missouri, took the first premium—a *Diploma*—for the best display of fruit trees, and also for the best display of ornamental trees and evergreens. This was an excellent show of nursery stock, even much better than they exhibited at St. Louis. Mr. James A. Bayles, of the same place, was a close competitor, and took the second premium in both fruit and ornamental trees.

We cannot pass by without mentioning Mr. M. E. McBride, of Independence, Mo., who had also an excellent show of fruit and ornamental trees, with the novelty of having the fruit of each kind attached to its own tree. Here we saw for the first time *Caldwalders' Golden* apple tree, with its fruit attached to the tree. This is a new, handsome apple, just being introduced by E. F. Caldwalder, Paola, Kansas, which we have taken a drawing of, and will at some other time fully illustrate and describe.

The Kansas Pacific Railroad Company had on exhibition a large display of its various products from the "*American desert*," which would have been an honor to any State. It was evident that Elliott was not there or we should have found him. The only living thing we found representing the collection was two young Buffaloes, which were about as great a curiosity to the people as the Buffalo grass and agricultural products. The wine department was well represented. Isador Bush & Son from St. Louis took most of the premiums, but strange to say, that the best bottle of wine of any sort which took the highest premium was made from the wild grapes which grew on the bluffs of the Missouri river. This agrees with our own judgment, as the best American wine we ever tasted was made from the same variety of wild grapes. We have stated this fact repeatedly, and frequently reported the same, but we are a slow people to believe that we are blessed at home with such fine native grapes free from disease, and fully adapted to our locality; and we have also been even *ridiculed* in attempting to show it a distinct species, heretofore confounded with the *æstivalis* species. Mr. R. H. Higgins, of Miama, Missouri, took the first premium for his seedling peach, called "*Fall Blush*"—ripe from the 10th of October to the 20th, and will keep a month longer, good in quality for so late a peach, about the size and shape of "Black's Early."

ROASTED.—Ten acres of potatoes were lately roasted at once, and without digging, in Wisconsin.

Lessons of 1869 and '70.

BY DR. JAMES WEED, MUSCATINE.

ED. POMOLOGIST AND GARDENER.—On the 8th of April, 1865, the temperature fell to 15°—17° below freezing, after the fruit buds had become considerably swollen. In December preceeding, it had fallen to 16° below zero—48° below freezing, which killed the germs of the flower-buds of the peach and a part of those of the Early Richmond and Morello cherries.

I had previously understood that spring frosts would not kill fruit unless the flowers were fully open, which is true of ordinary *light* frosts. When the trees came into bloom, in some varieties of the apple and pear, the blossoms developed very irregularly, some of the side flower stems elongating fully, while the central one, which should be the longest and others, were short and stinted; and in the cherries a large portion of the flowers had no germ or pistil, while those buds which had been killed by the cold in December, did not open at all.

Last spring, 1870, was attended with similar causes and results.

	7 A. M.	2 P. M.	9 P. M.
April 14,	64°	80°	62°
" 15,	34°	34°	31°
" 16,	25°	38°	29°
" 17,	25°	46°	39°

Ice formed ½ inch thick. Although the temperature was only 7° below freezing on the morning of the 16th, it was repeated on the 17th while it was only a little above freezing at 2 o'clock of the day intervening, the fruit-buds were much more swollen than when 17° of frost occurred on the 8th of April, 1865. The germs of many of the cherry blossoms were again deficient and the apples showed all the same irregularity in their development.

In looking over this abnormal inflorescence I observed an anomaly, *a blossom without a flower*. Several of these were found, and investigating more closely I found the flower petals still adhering to the receptacle inside the calyx, bright colored but only about one sixteenth of an inch in diameter. Evidently these flower leaves had attained to this size within the largely swollen buds, when 7° of frost destroyed their vitality and impaired that of the flower stems that elongated so imperfectly.

In the discussions, as reported, at the Autumn and Winter meetings regarding the cause of the failure of the fruit crop of '70, Mr. Foster and others thought it was owing to the extraordinary and extremely early frosts of the Autumn of '69, but no one suspected that Spring frosts had caused any damage; indeed it was understood that no damageing Winter or Spring frosts had occurred. It is very much more easy for smart men to guess at

causes, than to prove them to be such, by showing their definite relations to results.

The effects of cold upon trees, flowers and fruits, are not clearly and definitely understood. When in the gay spring time nature first assumes her robes of green and decorates the orchards with gorgeous trusses and wreaths of roseate flowers, Old Boreas blows his icy breath over the fair and promising scene and all is blighted. The flower stems wilt, the flowers wither and fall, it is plain to be seen that the frost has killed the fruit. This effect of frost has been often witnessed by orchardists from time immemorial, but we believe it is not more than 50 years since it was first discovered that an extremely low temperature would kill the germs of fruit-buds in winter. We think it was first stated that 14° below zero would always kill the fruit-buds of the peach; of course the attention of observers was directed to prove or disprove this alledged fact.

Mr. Hovey, in an editorial in the Magazine of Horticulture several years ago said, "it was not the cold that killed the peaches, it was the weather before and after." This was in commenting on the fact that during the previous winter the mercury had fallen to 18° below zero and they had a crop of peaches.

On another occasion, after the occurrence of a very worm spell of weather in mid-winter, he gave a lengthy article in answer to the question "will not this warm weather kill the fruit?" in which he argued that the common fears of trees starting into growth during warm spells in winter are unfounded; that trees have a natural period of rest,—that when vines or trees are placed under glass for forcing at this unnatural period, a high temperature must be maintained for a long time before they will even swell their buds. Though his facts and philosophy were all right, and there may be little or no danger from warm spells occurring in early or mid-winter, the danger becomes imminent towards the last of February, or in March, when the trees are nearly ready to awaken from their natural period of rest. But why were some germs of cherry buds, some varieties of apples and some buds on varieties that were injured, apparently not in the least damaged while others were killed? Ithas often happened in the last twenty years that a degree of cold which has killed every fruit-bud on the peach, nectarine, apricot, and sweet cherries, has killed none or only a part of Early Richmond and Morello cherries, and our best varieties of plums, and it has sometimes been the case that a less degree of cold has killed only a part of these more tender fruits and the remainder have been entirely uninjured.

In the winter of 1867–68 on two several occasions the mercury touched 10° below zero. After the first occurrence, upon examination of the buds and young branches, a very few only of the buds were blackened, and very slight traces of discoloration could be seen in the young wood; after the second, an examination on Saturday the 10th of February, showed that the number of dead buds had somewhat increased and the discoloration of wood also, but the damage from these two ordeals was not material or sufficient to prevent a crop of fruit. Sunday was a clear cool day and the next morning the thermometer recorded 27° below zero. This killed all the fruit-buds of the peach and the new layer of wood, the growth of '67, over the entire trees—the bark and leaf-buds retained their vitality, except at the ends of the young branches, and deposited a new annual layer of wood in '68 over the dead layer of '67.

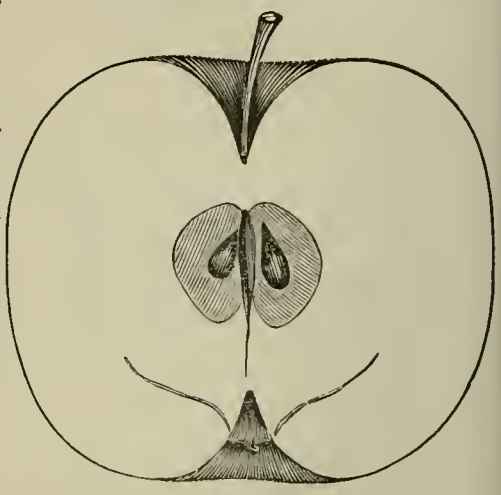
In 1864 and '65 the winter was characterised as being very mild, but we had very frequent and sudden changes—constantly freezing up and thawing out during the whole winter, and no cold occurred to injure the germs of fruit-buds, except on the morning of the 3d of February, when it was 12° below zero. This killed all the peach germs, except in some very favorable locations. But for this one cold morning every peach tree in hundreds of square miles in Iowa and Illinois, would have been full of peaches the following summer. Mr. Hovey's assertion, "it is not the cold that kills the peaches," wont do; for in this same winter we had all imaginable kinds of weather before and after the frequent changes, but it required just 12° to do the work of general destruction. We had one tree covered on all sides with straw-thatch one foot thick with thermometer inside which recorded 11°. This tree was tightly inclosed and perfectly excluded from the influence of the sun and protected against sudden changes, yet a part of its blossom buds were killed, as we believe, *by the cold.*

Experience and investigation on this subject have convinced us that the constitutional character and the existing conditions of fruit germs must be considered in connection with the degree of cold, that external influences, as "the weather before and after," may modify effects and turn the scale one way or the other, when the contest between vitality and the cold is about equal, but they are impotent to save when cold is a few degrees in the ascendency.

To Keep Fruit.—The *Journal of Chemistry* has the following: Beat together equal measures of honey and spring water in an earthen vessel; put in your apricots, plums or peaches, freshly gathered; cover close, and they will keep fresh for a year. When taken out for use they must be rinsed in cold water.

Sops of Wine.

This is an old variety of foreign origin, and until within the last three or four years past has elicited no special attention in Iowa, or adjoining States. But like Ben Davis, Grimes' Golden and some other sorts, little known or thought of years ago, is being resurrected as it were, and bids fair to becom one of our leading and popular apples. We first saw the fruit at Dubuque, in the latter part of July last, in the orchard of E. R. Shankland, President of the State Agricultural Society, and from a specimen of which the accompanying illustration and description are copied. Its season is about with Red June, and to our taste for eating from the hand superior, whilst for cooking we should give Red June the preference. The Sops of Wine has many good characteristics to recommend it. The tree is a fine, healthy grower, and as we were informed by Mr. Shankland, comes into bearing at an early age. The fruit is of fair size, of the right color to readily attract attention in the market, and in quality quite equal for the dessert, to any other summer apple in season ahead of Benoni On the whole we regard Sops of Wine with much favor.



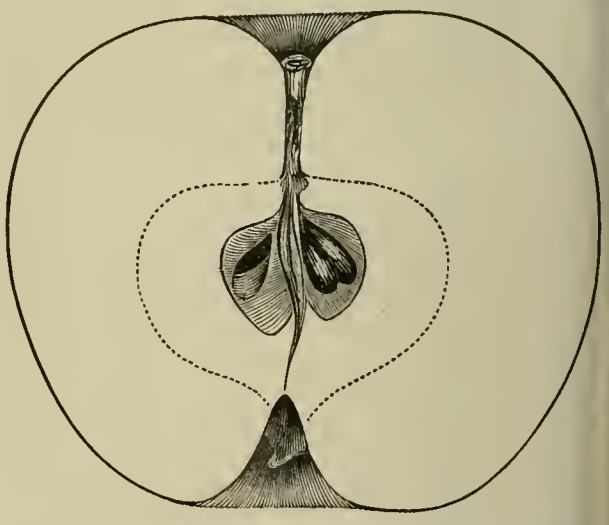
Downing's synonyms for Sops of Wine are *Warden's Pie Apple, Washington* and *Bennington*. Elliott's synonyms are *Sops in Wine* and *Sapson*. Why this discrepancy on synonyms between these two noted and standard authors, we do not know. It may be grown in different localities under all these synonyms. About Dubuque, it is better known under the name of *Washington*.

Tree a fine grower, spreading, vigorous, an early bearer and productive; fruit medium, roundish oblong; skin yellowish red, splashed and shaded with *deep* red, with a sprinkling of minute dots; flesh yellowish white, often stained with pink (a striking characteristic), firm, but tender, mild sub acid, very pleasant, good; cavity narrow, medium depth; stem long and slender; basin medium depth, (the illustration, through mistake shows it too deep) slightly furrowed; calyx closed. Season last of July into August.

The "Dommesta Bessarabia"---A New Russian Apple.

This is the new Russian apple received from D. W. Adams, Waukon, acknowledgment of which was made in November number.

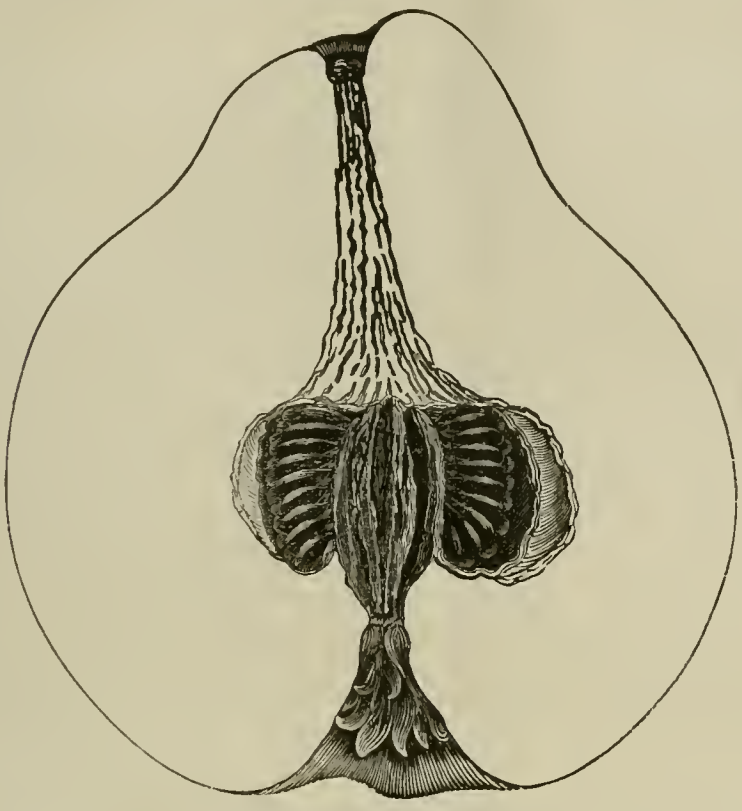
Fruit round, conic, pale yellow with fain blush on one side; cavity narrow and shallow; stem *very* short; basin medium in depth and breadth; calyx closed; flesh yellowish white, coarse, porous, breaking, *acid*, —to our taste a third rate apple—not so good as either of its "illustrious predecessors" Duchess of Oldenburg or Red Astrachan.



We should consider it of little or no account in the line of acquisition to an old orchard, but valuable to those commencing new orchards, on account of its promising so very early and abundant fruitfulness. No doubt it will be found a fair cooking apple, and *will* do to eat from the hand rather than none, or to pay western prices for better by those who may raise it. However, we do not know as the specimen tried should be taken as a fair test, for though the apple had began to decay before cut, it appeared immature, as thes eeds were but slightly colored. Mr. Adams, in a note accompanying the fruit, says:

"I send you by mail to-day a specimen of 'Dommesta of Bessarabia.' The cions were received from the Department of Agriculture two years ago and top-grafted. They made a slow growth but I never saw such bearers. Some of the cions not more than six inches long would have a half dozen apples, and those of twelve 'to twenty inches had frequently a dozen or more specimens, all very nearly of uniform size, varying a trifle larger or smaller than the one I send you'"

D. W. Adams.



THE ANGERS QUINCE.

The Angers and Orange Quinces.

By F. R. Elliott, Cleveland, Ohio.

Ed. Pomologist and Gardener:—In your October number of *Pomologist* I note an article from the *Rural New Yorker*, on the Angers and Orange Quinces.

It was of old time a received impression that the Angers was only valuable for stocks on which to work the pear, but the proof of a good thing is in its net worth, as an orchard on my own grounds of the Orange and Angers alternate, show according to samples I send you this day by express. By them I think you will find the Angers is of an equal size to the orange, and of as good color, but it—the tree—has a more vigorous early growth, and it does not as early come into bearing. The talk that the orange has many varieties is simple absurdity. Seedlings have of course been grown of it, resulting in anything but the true thing, and although I do not wish to touch the honor or knowledge of any man, yet I must say that for years growers and dealers sold orange quince seedlings as the true Orange quince. Hence comes the remark in your item from the *Rural New Yorker*—"that some are nearly globular, others are pyriform, etc.,"—all of which is bosh, and expression wanting in knowledge. Another point relative is the item—"that the Angers is less liable to attacks of quince curculio, owing to its hard surface and woolly covering,"—all of which is nonsense, and untruthful—as you perhaps can see by the samples sent herewith.

Apple Snow.—Pare and core twelve apples, steam until tender, set the apples aside to cool, then pour over them a whip made of the whites of three eggs beaten to a stiff froth. Serve with sugar and cream flavored with extract vanilla.

Interesting Experiments About Sap.—Blood for the Grape Vine.

By Jacob Stauffer, Lancaster, Pa.

Ed. Pomologist and Gardener.—In the *Gardener's Monthly*, March, 1868, p. 75, Dr. J. Stayman, in a very interesting article, indulges in the following remark: "No journal can become popular that is *purely practical*, unless man should cease to think and become a monkey."

The more we study nature, the more we find hidden and imposing forces exist, where the superficial observer only sees inertia. It is known that plants like animals, have a circulation. The sap, as proved by Hales, in his experiment, by fitting a long tube to the stem of a young vine which he had severed, saw this fluid rise forty-four feet high. This led others to experiment. In fact, De Candolle, who was one of the last to move in this matter, noticed that the force with which the sap rises in the vessels of the plant is equal to the pressure of two atmospheres and a half, equal to the weight of a column of water eighty feet in height. Various authorities can be given that the sap rises in the vessels of the vine with at least five times as much force as the blood circulates in the crural artery of the horse—the most important blood vessel of the thigh.—Even the matter of fact Huxley, in his Lay Sermons, page 125, gives expression in these words: "The wonderful noon-day silence of a tropical forest is, after all, due only to the dullness of our hearing; and could our ears catch the murmur of these tiny maelstroms, as they whirl in the innumerable myriads of living cells which constitute each tree, we should be stunned, as with the roar of a great city." Men deemed materialists, like Huxley and Darvin, admit forces which exist and operate in a manner and way *past finding out*, so every man (unless he is a fool) will.

We may say however, that the sap or fluid absorbed from the earth by the roots of plants in its crude state, is water, holding earthy and gaseous matters in solution, especially carbonic acid; but as it rises through the tissue of the stem it dissolves the secretions which it meets with in its course, and thus acquires new properties, peculiar to such secretions lodged in the plant, differing entirely by the time it reaches the leaves and flowering buds. In trees the sap is mostly confined to the outer part of the wood, hence called sap-wood. It is not certainly known through what kind of tissue the upward motion of the sap takes place, but it is probable that it is carried onwards through all the tubes and vessels of the wood and their inter-cellular passages. The dotted vessels of the wood seem more especially destined to fulfill this office when the sap is in rapid motion; but as they afterwards become empty, while the ascent of the sap continues, there can be no doubt that the woody tubes or pleurenchyma, (juicy ribs) offer the most constant means by which the sap is conveyed.

It is by the root and leaf the plant is nourished. The leaves imbibe moisture by the whole of their surface, by every pore, whilst it is only through the smaller fibres and spungioles of the root that water is taken up from the soil. An instinctive power seems to guide the roots to seek nourishment. Dr. Davy brought forward a case in which a horse-chestnut grew on a flat stone, the roots passing for seven feet up a wall, then turning over the top of the wall and down again seven feet to the earth. According to Malherbe, "A New Englaud Acacia, which had become weakly and languishing after having exhausted the sterile soil in which it was planted, at last driven to quench its thirst, threw out one of its roots across a hollow of sixty-six feet, in order to plunge it into a neighboring well, and spread out its fibers in the midst of the water. From this time, he says, the tree reared its sinking boughs and blighted leafage, after which it grew with marvelous rapidity."

De Candolle admits, without any circumlocution, that absorption is an essential phenomenon, as does Sennebier, Saussure and Desportaines. It is true there are accessory physical forces, such as endosmosis, capillary attraction, and hygroscopic action, that is acted upon by the condition of the atmosphere with respect to moisture. But it is a great error to suppose these to be the special agents. The radicles seem to select instinctively from the soil the food of the plant, which is scattered through it. But absorption is so little left to the chemico-physical powers, that certain plants vegetate in soil stuffed with deadly substances without suffering in the least from it. There are, however, cases in which it was shown that certain salts of copper, mercury and iron, which kill plants, are yet absorbed by them. But so with animals and it in no way disproves the vital nature of the absorption of the roots. The spongioles of plants are sometimes deceived, and introduce with the sap some poison which kills them. Dr. Daubeny, Professor at Oxford, states that the sulphuret of arsenic contained in small quantities in the soil produces no injurious effects upon mustard, beans and barley. He concludes that, to a certain extent, plants possess the power of selecting from the constituents of the soil in which they live- Much more might be stated to prove that absorption by the roots is a vital act.

I may thus far have failed to be "*purely practical.*" When I review the host of articles on the grape vine, scattered over the pages of the Monthly Gardener, Horticultural journals, &c., &c., for years past, with the conflicting views and experience of

the writers, I do not not deem it my duty to comment upon them; but a few facts have come under my own notice to which I wish to call attention, with the hope to bring out corresponding facts in the experience of others, and which, when properly understood, may lead to a better understanding of some facts, as yet, conjectural.

A neglected vine, prostrate among the grass, slightly supported by branches trimmed from an adjoining apple tree, was found in September to have some fine, large bunches of grapes of a delicious flavor. Personally interested in the matter, I considered this grape too valuable to suffer it to remain in such a condition. Late in the season, with the aid of an experienced vine dresser, I had the vine carefully taken up and transplanted to a good location near the dwelling, both for shade and convenience. In the following spring it grew luxuriantly, making rather more new wood than to me seemed customary. It spread and flowered profusely, was highly fragrant, but not a single fruit was seen. Thus it proved year after year during my stay. A knowing grape grower, declared it was a male plant which would never bear fruit. But how come it a male, it certainly bore fruit for years before, as the former owner testified. I ate fruit found on it, as before stated. How came it transformed? by transplanting? I mentioned the circumstance among others, to Mr. Abel Keise, of Manor Township, Lancaster County Pennsylvania. He informed me that he experienced precisely the same results, having found a vine in his fields, supposed to have been carried out among chip-dirt, which also bore a delicious fruit. This he carefully took up in the fall and transplanted it near his dwelling, where it flourished, flowered, but remained barren, a so called male vine ever since.

Seedlings often prove to be barren, I should think, in my very limited personal experience. I found it so in a vine raised from the seed of a raisin, which flowered freely but bore no fruit. Would the result be different, if the vines above referred to had been transplanted early in the spring? or if their roots had been pruned when transplanted? or must we look to some change in the tissues brought about, by the check to a vigorous vine, caused by its removal to a different soil or locality. I stated the same facts in an article published in the "Farm and Fireside" in April, 1867, with speculations about the pith, pulp or parenchyma the medullary sheath, &c., but I arrived to no satisfactory conclusions. As a botanist I cannot recognize seperate male and female plants in the vine family, as they do not belong to monœcious or diœcious orders of plants, but termed polygamous, having mixed flowers, pistillate, staminate and hermaphrodite, i. e., perfect flowers, with pistils and stamens (as usual in the grape), in the same flower.

BLOOD FOR THE GRAPE VINE.

I will mention another fact—Dr. Wm. B. Fanehstock, of Lancaster, Pennsylvania, assures me that he had growing in his yard what was called a male grape-vine, for many years; as bleeding was then in vogue yet, one summer he poured the blood drawn from his patients on the roots of this grape; and to his surprise, the following year, the vine began to bear good fruit, for years after. He suggested that bullocks blood might produce similar results, and would be worthy of a trial. The same diversity occurs in strawberries, and lengthy discussions are on record proving, as any one can determine, that sometimes the stamens are suppressed or abortive, in others the pistils, and yet the parts can be traced as rudimentally present in either case. There must necessarily be a cause.

Dr. A. P. Wylie, of Chester, South Carolina, gives his experience in raising hybrid fruit, he says: "In 1859, I grafted an old, wild, Æstivalis grape with the White Frontignan. The graft was put in late in the spring, consequently did not bloom (it bore two branches) until late, about the time that the Scuppernong or Bullace bloomed. So soon as the first blooms commenced bursting, I clipped them all off (those about to be blown), and then carefully cut away the stamens of all those not so far advanced as to be lifting the cap; by this means preventing the possibility of self impregnation. I then carefully covered the bunch with paper, so as to prevent the possibility of the wind or insects carrying pollen to the hybridized bunch." After partial success and failure he continues:—"In the spring of 1862, I was delighted to see all those five plants blooming (from a dozen seed out of the same fruit, five had come up in 1861.) Two of them proved male (staminate) and three appeared to have perfect hermaphrodite flowers. You may imagine my gratification at seeing those flowers preparing to fruit. * * Two of them however dropped their blooms and set no fruit, the other set a full crop, the bunches each having from twenty to thirty grapes, they grew until about the size of a buck-shot, and then all dropped.

He thinks the chief defect was want of pollen. He then relates his further experience and mistakes, and says, 1st, you cannot impregnate the Scuppernong with pollen from any other grape, either native or foreign. 2nd. You can impregnate the foreign "Bullace" with Scuppernong pollen, as he has *undoubtedly established.* 3d. That you can not impregnate either Labrusca or Æstivalis with Scuppernong pollen. 4th. That you can not impregnate native or foreign with hybrid (Staminate) Scuppernong pollen, &c. He has produced Clinton hybrids with Black Hamburg, White Muscat of Alexandria, Syrian and others. Delaware

impregnated with Clinton, also Delaware and Concord each impregnated with Clinton hybrids No. 1.

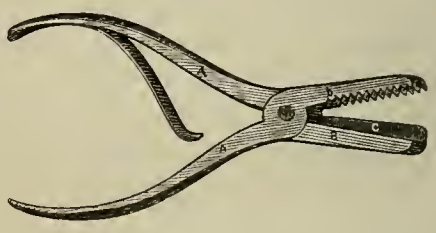
He says—"I have never seen mildew on the Frost Grape, (Cordifolia) therefore think it may make a fine basis for hybridizing." In summing up his experience, he makes this remark—"There appears to be no end to the sporting. One of the most *vigorous*, healthy vines, with fruit of the finest flavor, or *certainly as fine* as I ever tasted, either native or foreign, is a white or yellow fruit, whereas its parents bore one a black and the other a dark red fruit. Two seedlings of the same crop have no resemblance, either in wood, foliage or fruit, &c." These *purely practical* and experimental results, establish the great bewildering fact, that causes are brought into action that deflect, refract and interchange with certain vital centers in vegetation—which like light, is one, and yet has rays differing in action, forming the basis of primary and a host of intermediate colors, originating from a primary, fundamental, latent force or motion, or prismatic refrangibility of its rays.

We know that there is such a property as motion, which we consider as simply a resultant feature, or expression of force, by watching the changing conditions, forms and positions of material objects and their varying appearances. It is true, motion outside of materiality, we can know positively nothing of it, because if such there could be, it would be beyond the reach of our demonstrative faculties. Motion stands as an extreme expression of an originating property, lying between the precincts of power and inertia.

To conclude, I will simply add, that there are deep underlying physical and electrical causes—I was going to say also spiritual, but that is tabooed, if I should say vitality. Huxley says, "What better philosophical status has "vitality" than "aquosity?" And why should "vitality" hope for a better fate than the other "itys" which have disappeared since Martinus Scribblerus accounted for the operation of the meat-jack by its inherent "meat-roasting quality" and scorned the "materialism" of those who explained the turning of the spit by a certain mechanism worked by the draught of the chimney?" I am admonished to take heed, for Huxley also puts this question—"Why trouble ourselves about matters of which, however important they may be *we* do know nothing, and can know nothing." But in his effort to show the physical basis of life—what does he show or establish, what is his protoplasm, carbon, hydrogen, oxygen, and nitrogen, these combine under certain conditions. These new compounds are lifeless. "But when brought together under CERTAIN CONDITIONS they give rise to the still more complex body, PROTOPLASM, and this PROTOPLASM exhibits the phenomena of life." Bully for Huxley, here it is in a nut shell.

Warner's Grape Picker.

We doubt not many of our readers have experienced the inconvenience of holding a basket, or other kind of receiver with one hand, and at the the same time trying to pick grapes with the other, for it is difficult to sever the wiry stems from the vine without the use of a knife in one hand, while the cluster is held with the other. It appears to us that we have here a very useful and convenient implement to facilitate the operation, as it requires the use of but one hand, and not only severs the fruit from the vine, but holds it fast at the will of the operator. It comes from the land of the vine—California. It is described by the *Pacific Rural Press:*



"It is made of brass and is very neat in appearance, combining in one instrument a cutting device and holding jaws for seizing the severed twig or stem. It consists in the employment, in connection with the knife, of two pinching jaws, one of which is grooved longitudinally through its central line, while the projecting sides are formed into teeth for the purpose of not only giving greater holding capacity, but also of providing space for the stem or twig to occupy without entirely flattening it when the jaws are closed. These teeth also serve to hold the stem in front of the cutting-blade while it is being cut.

A, *A*, represent the handles, and *B*, *b*, the two jaws of a tool similar to an ordinary hand-punch. Secured by means of screws, to one side of the jaw, *B*, is a knife or blade, *c*, which in connection with the edge of the opposite jaw, *b*, will serve as a pair of shears. In severing the stem, it will be caught by the teeth and prevented from slipping from the lower jaw while it is being cut; and as the jaws close together it fills the hollow of the teeth, and is pressed into the longitudinal channel, thus giving a firm hold without completely flattening it, as is the case with plain jaws.

This implement is of especial advantage for picking grapes and other heavy bunches of fruit, too large to be held by the tension of a spring. To parties having large vineyards where grapes are used for manufacturing purposes, or for market, this tool is especially useful."

Failure of the Apple Crop.--Bees on Grapes.

By J. B. G., Columbia, Pa. Nov. 4, 1871.

Ed. Pomologist and Gardener:—Here in old Lancaster County, Pennsylvania, I may just say "as usual," no apples. Since 1835 we have had but two or three moderate crops on our apple trees. Previous to that time the trees would seldom fail of bearing heavy crops every other year. Since then failures have been the rule, and fruit the exception. I am fully of the opinion that the cause was the severe cold during January, 1835, that killed many of our apple trees, and sickened others so that they never after became sufficiently recovered to bear fruit, though many trees of that date are still living. The thermometer indicated 24 degrees below zero. Peaches and sweet cherries were nearly all killed on level ground.

For some ten or fifteen years farmers planted very few trees, hoping that the old orchards would recover. Then when young orchards were again planted, and nearly ready to bear, on January 9th, 1856, the mercury fell to 22 degrees below zero, and again in 1857, January 23d, 20 degrees, and January 24th, 22 degrees below. Then our young orchards were again made sick. Thus I attribute the failure of our apple trees bearing fruit, to the severe cold as the chief cause.

After each of those cold spells, on cutting down a tree, the wood was found black and watery; even at present, though the sound wood has grown over this black heart wood, the years of growth can easily be counted back to 1856 and 1857, and on old trees back to 1835—the new layers of wood being white.

In some special localities there has been a fair crop of apples this last season, generally on high ground, or on stony or slatey soils, or on northern exposures. On our limestone soils, where formerly our trees bore large crops, so long as a sound limb remained on the trees, now if even a few scattering apples do appear, they are usually wormy and drop from the trees before the proper time. I well remember the time when we had Fallawater and Winter Sweet Paradise, keep sound till May, and Rambos till March. Now even when the trees appear all right, the few apples fall off in August and September, too imperfect to keep more than a week or two.

Pears we had a fine crop, and mostly of very fine quality. Peaches and cherries in profusion, small fruits also in great plenty, even the wild fruits such as Raspberries and Blackberries, more than usual. Chestnuts too, bore more profusely than for many years.

Grapes also succeeded well, not much mildew or rot; but what to me was strange—though I formerly kept bees, I had never known them to injure the grapes—while this season, my neighbor's bees, a mile and two off, came in swarms to suck the juice as fast as the berries became sweet. Formerly my trouble was with the cat-birds and thrushes pecking and spoiling the bunches; this season birds had plenty of wild fruit, so they did not seriously injure the grapes, but the bees and wasps were ten times worse. Of my many varieties hardly a perfect bunch was saved.

We are having a very fine fall, only a few frosts so far. Our farm crops have generally turned out more than an average. Wheat better than for many years; corn extra; potatoes a large crop; tobacco never a finer crop raised in this county; hay was rather a light crop, and oats poor. Pasture has been abundant all the after part of the season, and is yet plenty and good. Farmers have a fine time to get through with their fall work. More anon.

Pear Blight.

Are Fungi the Cause, and is Root Pruning the Remedy for this Disease.

By the Corresponding Editor.

If fungi are the cause of the blight, it is hard to account for the following facts: First, they almost universally attack wood of the most vigorous growth, made during the preceding season. Secondly, they are *said* not to attack trees during a very dry summer. Thirdly, they, it is said, have never been known to attack trees either in California or Italy. Fourthly, they will attack trees in a most destructive form on one piece of grouud, and on another piece of ground not one hundred yards distant, containing trees of the same kind and same age, and even of the same variety, they make no attack whatever, notwithstanding all the trees are surrounded by the same circumstances, in regard to heat and cold, wet and dry, sunshine and shower.

Now, from the foregoing facts and statements, it is difficult to conceive how these fungi attack strong, healthy trees, rather than feeble and unhealthy ones, which would seem to be more easily overcome. It is also difficult to conceive why it is that they do not attack in a very dry summer. If they are indeed the cause of blight, it would seem from the analogy of disease, that the most feeble growth would be the most liable. If the pear tree is their favorite tree for attack, why is it that they are never attacked either in Italy or in California. It is surely not to be presumed that fungi are not to be found in those countries. Their attacking trees of the same kind and not attacking others side by side with those that are, is hard to reconcile with their universal presence, and their uniform preference for the pear tree.

We are therefore forced to the conclusion, that

the cause of pear blight, if ever discovered, will be found in something other than the attacks of fungi upon trees which are sound and healthy. That fungi are found in disorganized tissues, those which have had withdrawn from them that mysterious principle which we call *life*, is certainly not an evidence that they are the cause of this disorganization. But as they are always found, if found at all, not in healthy tissues, but only where disorganization already exists; the presumption is, in our opinion, conclusive, that they are the *consequence*, and not the cause of this disorganization. If, indeed, they are the cause of disorganization in healthy trees, how is it that they, like the carrion crow, are never found but where putrid matter is found. This bird is never known to attack anything in health. Death is the common lot of all living organized bodies, and it is in accordance with the wisdom of the great Ruler of the universe, to have something to act as scavengers to remove from around his creatures, those things which if left, would render their situation quite intolerable, and would convert the earth into one common burying-ground. These fungi are therefore wisely provided, not for the production of disease but for the removal of its causes out of the way.

These fungi are also said to be the cause of nearly, if not all, the fearful diseases which flesh is heir to, as cholera, small-pox, consumption, &c. Whenever the medical colleges of the world teach this doctrine, we shall then begin to think there may be some truth in it; but until then, we shall believe that we are neither a *walking forest* nor a floating *menagerie*.

We now come to consider our second proposition, and that is, if blight exists in the pear or any other tree, whether produced by fungi or otherwise, is root pruning the remedy?

We will suppose our tree which is to be the subject of our experiment, to be transplanted to the orchard where it is finally to remain. Everything now done in the way of pruning that should be done in accordance with the objects we have in planting the tree. This is, in the case of every fruit tree, the production of the best fruit which science and art, as far as we can apply them can be made to yield. This tree, if of a bearing age and left to itself, would produce more wood than would in most cases be consistent with the production of the finest fruit, which the tree, if differently managed, would bring forth. In this case, so to speak, fruit, the finest fruit, should be upon the brain. Upon the subject of fruit-growing we must be, to some extent, monomaniacs, or we will not be likely to succeed in a very high degree. Hence in the matter of pruning we must always bear in mind that a due proportion between the root and the top should be maintained, always remembering that fruit is the object of our efforts. As the root has to furnish food for both wood and fruit, it should have a just preponderance over the top; enough to make a proper amount of wood, as well as to grow and ripen a reasonable crop of fine fruit. Now, if we abruptly destroy this just balance between the root and the top, we defeat the object for which we started out, the greatest amount of the finest fruit. This broken balauce between the root and the top is produced by either very heavy pruning of the top or the root. In either case the life of the tree is in great danger. Root pruning upon a healthy tree has the effect to throw it into early and profuse bearing, but every time it is performed the vitality of the tree is lessened, until it finally dies of premature old age. Hence, if root pruning has this effect upon a healthy tree, it surely cannot have any other effect upon a tree already seriously diseased, than to hasten its destruction. Root pruning cannot therefore be a remedy for blight in the pear tree. As a preventive it may, and no doubt does, have some influence when judiciously performed, but under any circumstance it will shorten the life of the tree. There are circumstances, when the life of the tree is considered of less value than a certain amount of fruit in a very short time, then root pruning may be indulged in, but never as a remedy for blight, when this disease is once fully developed.

The Improvement of Vegetables and Fruits.

Ed. Pomologist and Gardener—The improvement of Vegetables and Fruits by proper cultivation. Every plant in the vegetable kingdom, whether vegetable, grain, fruit, or whatever it may be, is possessed of certain organs that are as absolutely necessary to its existence and growth, as the various organs of animals or man are necessary to their growth; and while these organs may not be as extensive in plants as in members of the animal kingdom, at the same time, the labors which they are destined to perform are as intricate.

All plants derive their food from the original elements of nature, consisting of the minerals of which the earth is composed, or of the gasses of the atmosphere, which are united in different combinations. And, as in the mineral kingdom the union of simple elements in certain limited quantities is necessary to the formation of perfect crystalized specimens of each mineral class, which combination ever remains constant; so in the vegetable kingdom, each species of plants requires a similar union of simple elements for its formation, and also, while in the mineral kingdom in the case of any particular class of minerals, if in the combination of its elements, there is a slight deficiency in any elements, the result will be an imperfect

crystalal though an approximation thereto; so too, is the growth of plants, a deficiency in quantity of any of the elements necessary to the constitution of any particular class or variety, results in an imperfect production.

There is without doubt a standard of perfection in every department of nature, and while this is found in the mineral kingdom in the perfect crystal which is found by the exact and specific union of elements, so it may be arrived at in the other kingdoms by a similar perfect union of elements. But as plants and animals are in a certain sense fixed, unable by their own volition to select the food necessary to their perfect development, being in that respect somewhat unlike the mineral kingdom, since these while yet in a fluid state in consequence of molecular attraction unite in perfect specimens, the only conclusion to be arrived at is, that unless as the result of accident, all plants and animals in the natural condition are imperfect specimens of the class to which they belong. This being the case then, the only rational conclusion to be arrived at is, that whatever steps are taken in the direction of progress must be through the assistance of man. Having come to this conclusion, it then follows that the most successful pomologist or gardener is he who most industriously applies himself to the study of the character and constituents of the soil, vegetable physiology, and all of those particular branches relating to his spere of labors. And if certain mineral elements are necessary to the growth of the apple or pear tree and it is believed that any are wanting to a considerable extent, then all that is necessary is to furnish them and thereby reap the natural reward. All of these positions are abundantly substantiated by practice in the past. How many are the varieties of flowers that have been taken from the condition of growing wild, and by care and culture been developed to the most perfect flowering specimens; so also in the case of vegetables, by proper assistance in their efforts of growth and maturity they have been changed from unsightly and unpalatable specimens to those upon which the greatest epicurean could feast; so again with the various fruits what remarkable results have been accomplished in the transformation of miserable, sour, puckery specimens to those of rich, melting qualities, and all of this by a little care and attention, and application of mineral feltilizers particularly adapted to each variety, and which they were anxiously but unsuccessfully searching for in the soil.

The question may very naturally be asked, what is the proper cultivation of Fruits and Vegetables? It is the performance of any of those operations which are calculated to assist in the designs of nature. In the amelioration of soils by means of proper fertilization, drainage, &c., whereby their condition is better adapted to the germinatian and gowth of plants; aiso due protection from the excessive effects of atmospheric causes which operate injuriously; also in a method of necessary and judicious pruning, and many other things of somewhat less importance, but which the experience and practice of the gardener or pomologist will readily suggest. It is by this means that many of our most highly prized fruits, and also vegetables, have been obtained. Many are the cases in which the wild, scraggy tree of the forest which perhaps gave no fruit at all, or of but little promise, upon being transplanted to a more congenial position, where the elements which it desired were found in much greater profusion, has rewarded the labor bestowed and the attention given, by furnishing a fruit of most excellent quality and beautiful, outward appearance.

And is it not a fact that the alleged deterioration of fruits in New England is in a great measure due to excessive negligence, especially after the tree comes to comparatively full bearing. It is about as reasonable to suppose that an animal placed where there is a certain amount of different kinds of food from which it can help itself, should thrive for an indefinite period of time with no further food, as to suppose that an orchard will thrive when perhaps cropped with grass and no fertilizing food returned. There is but little doubt but that if these orchards which are reputed to be failing, have a proportionate amount of care with other crops, the cause of complaint will be removed. So long as there is any sustenance in the soil it is perfectly natural that any tree should continue its growth, which may also appear to be healthy, but unless those particular elements necessary to the growth and perfection of fruit are contained in the soil to be taken up by the roots and properly elaborated for use, a barren tree must be the result, however vigorous its general appearance may be. This principle is frequently noticed in the general cultivation of crops where a comparatively well grown plant refuses to seed, when immediately on one side of the piece under cultivation, and where some special fertilizer is applied, an abundant crop is the result. This being the case, then with positive evidence to support the fact, any man who would refuse to furnish the needed food which would return to him a reasonable harvest, would at once be considered unwise. But is not precisely this state of affairs existing in many orchards at the present day, and which are greatly neglected, perhaps partially in consequence of an inappreciation of the real state of the case? Now therefore if the knowledge can be gained in no other way, let the farmer experiment among his trees as he would among his other crops, and having found the panacea of all their ills, be diligent in its application, so

that success may attend his labors. Again, it may be said that the proverb, "Eternal vigilance is the price of success," is as applicable to the cultivation of fruit as to any other pursuit or object of life, and until pomologists are ready to exercise this diligence in the extermination of pests, and in efforts for the promotion of the health and general good of their trees, they have no reason to complain for their want of success with a willingness to attribute it to an imaginary cause which is considered beyond their control.

Notes on the Cabbage—Sorts and Enemies.

By Charles E. Bessey, State Ag'l College.

Ed. Pomologist and Gardener.—I will give you a few notes on the cabbage, gathered from my observation the past season.

GOOD EARLY VARIETIES.

Early York.—This has shown itself one of the best for the farmer to cultivate. It is one of the oldest varieties—dating back in its origin to over one hundred years ago—but though so old, it stands as a perfectly reliable variety. Heads roundish and firm.

Early Jersey Wakefield.—This though somewhat small is a good variety. Heads conical and very compact.

Sugar Leaf.—This variety in my opinion is scarcely worth cultivating. Heads oblong and seldom firm. When so many better varieties can be obtained, it will not pay to plant this.

Early Winnigsntadt.—This is a medium sort, both as to size and earliness. Head conical and compact. Can be planted for using after Early York and Early Jersey Wakefield.

GOOD LATE VARIETIES.

Stone Mason.—One of the best of the flat, or drumhead sorts. In size it is not equal to the rest, but for general use is perhaps fully as desirable. It is sometimes known under the name of Stone Mason Drumhead.

Marblehead Mammoth.—This is perhaps the largest growing of all the varieties, and since a good many people like big things best, this will give the most general satisfaction. The heads are flattish, solid and when well grown of immense weight. For cooking they are well liked.

Red Dutch.—This is valuable only, or principally at least, for pickling; its color being liked better than that of the other varieties, for this purpose.

LIST OF CABBAGE ENEMIES.

The past two years I have noticed on the cabbage a small green worm, about one-half an inch in length, which in some instances almost utterly ruined the crop by eating holes in the outer leaves. Occasionally it bores into the head, but from personal observation I am sure that this is not its most destructive mode of procedure.

It is the worm or larvæ of a little moth called technically *Plutella Cruciferarum, Zell*, and according to Entomologists is known all over the world. The moth is about one third of an inch in length when at rest, and with a spread of wing of about five or six tenths of an inch. When at rest it folds its wings over its body house-roof fashion, and projects its antennæ forward in a line with its body, giving it quite a compressed appearance. The top of the ridge formed by its folded wings is whitish, while the remainder of the body is more or less of an asbury brown.

It is described and figured in the Journal of the Royal Agricultural Society, Vol. III, and is there said to attack turnips as well as cabbages.

C. V. Riley of Missouri, says that in that State they have been very destructive.

I know of no remedy, unless it be an application of slaked lime.

Another enemy is coming to us from the East in the shape of the cabbage butterfly. This can now be seen any summer day, and is commonly known as the White Butterfly, technically, *Pieris Oleracea*, Harris. It is white throughout, excepting that the wings are dusky next the body, and somewhat yellowish underneath.

The larvæ produced from the eggs which it lays are about one inch long, and of a dull green color. These bore into the heads, and unless picked off soon entirely spoil them for any use. Careful hand picking is perhaps the most efficient remedy.

Sometimes the miserable little cabbage lice make their appearance in such numbers that the crop is, if not utterly ruined, at least rendered so filthy by the insects, that its value is greatly reduced. These belong to the Aphidæ, and are known as *Aphis Brassicæ*, Linn. They are closely related to those found on our green house plants, as well as to those on the apple and cherry trees.

Well grown plants seldom or never are troubled with them, and when once they have taken possession I suppose there is but little help for it.

In the early stages of the growth of cabbage the flea beetle sometimes works sad havoc. To this pest Entomologists have given the name of *Haltica Striolata*, Ill.

Drive this insect off by a liberal application of ashes or lime.

The cut worm often gives serious trouble, by eating off the young plants when just set out. The worms are too well known to need description. The moths from which they are produced are not so well known however. They are night-flyers, and often visit our rooms, fluttering around our lamps. They are of a brownish color, and are about three quarters of an inch in length. Technically they are *Agrostis telifera*, Harris.

I know of no better way to get rid of these pests than to dig them out and kill them, but they can be *kept out* of the garden by taking proper precaution.

In the fall clean off every bit of rubbish, and and plow up the ground. So that in the first place they will have no hiding places, and in the second place the plowing will expose them to the freezing and thawing of the winter, whereby the larvæ will be killed.

The Vineyard.

Vineyard for December.

By the Associate Editor.

There is not much out-door work that can be done this month unless the weather is very mild, then all the work left undone last month may be continued. Grubbing out land for new vineyards may be continued all winter in protected places where the ground does not freeze too hard. Pruning in mild weather and making cuttings may be done. We have even planted vines this month with good success in mild weather. Trellis can also be built, or at least the materials may be prepared and ready to put up. Leave nothing undone which can be done in the fall, for in the spring you will find but little time with your other hundred necessities.

Never allow your work to push you, for it is an old maxim and a true one that "a stitch in time saves nine." See that your wine is kept well bunged and do not be in a hurry to rack it off until it becomes perfectly clear. If it does not clear itself—it will be found generally to lack tannin and has not been properly made; White Concord wine has this fault which makes it so turbid and unpalatable; no refined taste can tolerate such a beverage. We have never yet seen wine fermented on the skins which did not become clear if properly handled afterwards.

On wine making there is so much said and little understood that we cannot do it justice in these short notes, but simply hint at some of the few general principles.

We would suggest to those planting grapes for wine not to plant the Concord; while it makes a passable wine it is far inferior to Ives' Seedling in every respect, except perhaps in quantity per acre, but in every essential principle it is very far in advance of the Concord. As we suggested last month that the art of wine making is in the proper blending of the essential principles found in the varieties and not in any one grape, except perhaps a few not adapted to general cultivation.

Culture of Grapes in Graperies, No. 3.

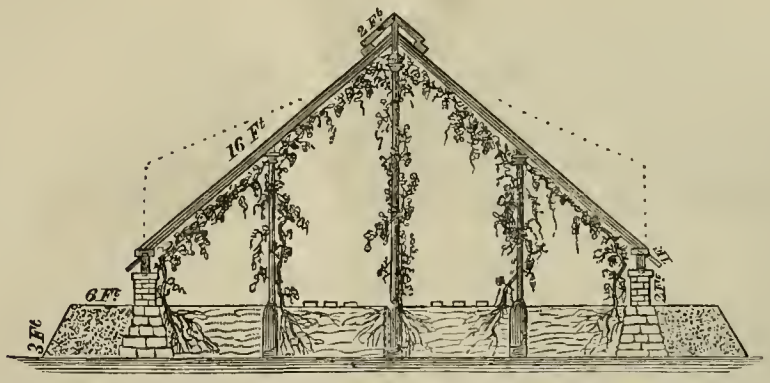
By S. J. Parker, M. D., Ithaca, New York.

As a variety of the plan of making the border, drainage and foundation of your grapery, another phase is given, which in some places will lessen the expense, as no excavation is to be made. It consists of the essentials of Fig. 2, with the exception of the excavation. The material used is brought to the site of the grapery and piled on the natural undisturbed surface of the ground. This will enable one to build anywhere, irrespective of the soil or other relative disadvantages of like nature, where the cartage of material is a small object. On this plan, the dimensions of the vinery being marked out, the walls of the house, whether of wood, stone, or brick, are built directly from the natural surface to the glass work, and the drainage material piled on the surface, sufficiently deep to secure dryness, or to the distance allowed for it in building the walls; the outside mound or grass plot being built of inferior soil, while two feet deep is filled in with the rich mingled soil of the border; thus arranging the whole foundation work and border just as one pleases, and with an accuracy not always attainable by any other mode. As a guide to the relative sizes, suppose a span-roof house to be built. Let the size of the house be 20x50, or 22x100 feet; for this drive stakes, then outside of these drive other stakes, as the mound is desired to be 6, 10 or 15 feet, wider than the first stakes. Allow fifteen inches for drainage material, composed of coarse sand, gravel, stone or broken brick, cinders of furnaces, or any other most convenient and suitable articles; build the walls and complete the rest as suggested by the data already given.

The last remark is mainly for inside border. For outside border, you extend the work outside of the building at least thirty feet, enrich it, and make it as described for the inside of the house—fertile, yet not over rich.

At this point please notice that a border two feet deep is recommended as sufficient; for the European border of six feet deep may be considered not

Fig. 4.



only an unnecessary expense, but as a positive injury to the vine by the acidity and deep coldness produced thereby. Observers, too, of much experience tell us that the slow decomposition in such excessive deep borders generates acidity. It cannot be disputed that no sun-heat penetrates to these great depths so as to exert much influence, and everywhere in Europe and America the tree or vine with its roots in a light, porous, shallow soil ripens the best flavored fruit. As to the expense, few are aware how great is the labor of digging out even two feet deep, mixing in the fertilizers, and replacing the soil. When four other feet are added to this task, at a greater proportional expense, the advocate of this practice must thoroughly prove its necessity and disprove the now well-founded belief that vine-roots as well as dwarf pear-roots, are better to be as close to the surface as possible.

Next comes a question which, in fact, must be decided before the excavation raising the mound, or otherwise preparing the ground or laying the foundation is done. What is the best plan of building the house or grapery edifice? In reply it may be said old well-approved authors recommend what is called lean-to structures—a style sufficiently seen in a previous figure for another purpose. Reference to that figure shows, irrespective of the site and border, this vinery as consisting of a front towards the South; a large glass roof at a low angle, also towards the South, and the main source whence the sunshine is received; a small reflex or Northern glass roofing, used often for ventilation, and a North wall or back of the house, built of brick, stone or wood, made hollow and filled with tan-bark, or other non-conducting material. In some instances elaborate designs are given for convoluted, zigzag, or otherwise arranged smoke-flues in this back wall for heating the grapery, which are costly arts. And still further, to render this wall on the North side of it available, sheds are recommended to be built, adding further to the expense.

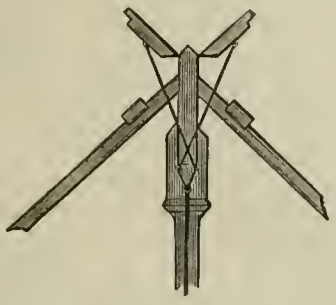
There are, of course, places where, in preference to every other, this is the true plan for a vinery; but it is believed to be the most expensive plan that can be adopted for the number of vines it will fruit well. Rather adopt the span-roofed or double-roofed house, with one roof to the East, containing as many main vines as the "lean-to-house" will fruit; for the fruit on the back wall, from the secondary or adjunct vines, is, at the best, but poorly ripened; and another roof to the West, which contains as many more main or principal vines; thus doubling the fully exposed vines; and on the columns in the centre or interior portions of the grapery put the adjunct vines, of which there can be one, two, or three rows, if desired, which will average as well as the one row on the old English and French brick or stone wall. Thus, at an expense of but little, if any, over the "lean-to-plan," there will be two rows of main vines, and there may be three rows of secondary or "wall vines," and all fruited as well or better than on the old and now nearly abandoned style of house.

An illustration of the principles of such a grapery may be seen in Fig. 4, though with too steep a roof. It is a plain, economical house, and is recommended as a very satisfactory way of building a grapery. The roof is a right angle at the ridge. It can be built of wood wholly, or the part below the ventilators of stone or brick, and wood above, or the ventilators and roof may be of iron. But it is not necessary to give in detail plans for iron sash, nor recommend it as desirable for the ordinary American homestead, as long as wood is so abundant and will last ten or twenty years, with no more cost of repair than the iron sash, and so long as a grapery of wood, erected for less than half of the costly edifice of wealth, will fruit as many and as choice pounds of grapes. Too much already has been done, more for the benefit of the architect

Fig. 5.

Fig. 6.

Fig. 7.



and builder than for the vines. For permanent luxury nothing is too extravagant for the plain homestead. Simple efficiency is the most appropriate. The dotted lines in Fig. 5 indicate better shaped roofs than the full figure.

As a reasonable and durable way to build, as in Fig. 4, lay the foundation in stone or brick, the best materials, least affected by the weather. On the top of the wall thus built lay a wood-sill, well coated with coal tar and linseed oil. Let the sill be two or three inches thick, and as wide, or a little wider than the wall, so as to protect the wall from the drip inside and the rain outside of the house. Now mortice in at about three feet apart, on the sides and ends, the studs or uprights for the ventilators, and cap these short studs, with a plate two or thre inches thick and four or six inches wide, which plates receive the lower ends of your immovable sash rafters, the ends of the house being closed by perpendicular sash, extending from the end-plates to the rafters. As the greatest liability to rotting is at the ventilators and foot of the rafters, thoroughly cover these parts everywhere, in the mortices and unexposed as well as exposed parts, with coal-tar and linseed oil, half and half boiled together: use durable wood, if it can be got. The ventilators below the eaves are simple inch boards, battened on the inside or outside to keep them from warping, and hung to the plate by any convenient kind of hinges. The board ventilators are wide enough if not less than four inches or over twelve inches wide, and should be hung along the sides of the house, painting the inside and edges with the coal-tar and linseed oil, and the outside with white lead or other color. The ventilators may be pannelled and they will look better, or a row of panes of glass set in sash ventilators will be more useful. It is, on the whole, advisable to put on eave-troughs to carry off the water that falls on the roof, if there be a supply by a spring, or to fill the cistern, if that is the source for irrigation, as well as to save dampness in the wall and in the soil of the mound. Of course, it will be understood that the rafters are grooved for the glass and do not slide or open. As guides for sizes for such a vinery, we give five to six feet from the border to the glass roof; or to let the builder have all the liberty we can, say four feet is low enough for the eaves, and eight feet is high enough—the best judgment he has, of the lines between these extremities; and twelve or fourteen feet from the border to the ridge of the house. Length of rafters, about fourteen or sixteen feet.

The top ventilation is a matter of more difficulty than any, for the following demands are to be met: Enough of it, complete control over it, and that it be water and air tight. It is at the top of the house and cannot be ordinarily reached, except by the aparatus for opening and closing; the heat is apt to warp the ventilators, and thus render them not air-tight and to make leaks. To remedy the defects of the top ventilation many plans have been suggested. A good one is seen in fig. 5, from the Horticulturist, and with the assistance of Mr. Davis, a successful grape grower, the modification found in fig. 6 has a good one.

Fig. 5 consists of a cap-piece fastened to sliding rods, and opened by raising the cap by means of the rods. Fig. 6 consists of a similar cap piece, hinged on a frame made by itself and put between the rafters, the hinges being on the side next to the prevalent cold winds, and is opened by rods or other convenient mechanism. Or it may be made of two boards nailed to a roof-shaped batten and hinged as before; or of a single row of glass lights in a frame of sash, on each side of the ridge. The latter is the most costly. Figure 7 is a cheaper mode of ventilation, made either of plain battened boards, or of sash-frames and glass, and opened by a rod, as represented. But it will be found that ventilation represented in figs. 5 and 6 are the best.

Rafters one inch and a-quarter thick, and two and a half wide, are stout enough, and should be set edgewise, there being three sets of posts to support them—one for the ridge, and one on each side of the ridge, these posts having string-pieces on their tops to which the rafters are nailed. Four by four inch posts for the ridge, turned or not, and two and a half inch posts for the sides, are large

enough. They should be about six feet apart, and may have two secondary or adjunct vines trained upon them, which have already been said to bear as well, or nearly so, as the wall vines of lean-to graperies. There need be no other parts to sustain the roof. Ordinary snow will slide or be blown off, or, where it lies on the roof, it is better to put up temporary supports under the roof for the winter, and remove them in the spring.

Much further detail might be given, and we trust that in the next volume of this journal, whose value is year by year becoming greater, to speak of curvilnear and other ornamental graperies, as well as of the varieties of grapes advisable to plant, for fruitage in them. Sufficient has been said to explain the general principles of their structure. We only say, select not only Black Hamburg and other old kinds of grapes, but the newer, Muscat Hamburg, Deacon's Superb, Lady Finger Muscat. For north, avoid late varieties. But south, add Muscat of Alexandria, West's St. Peters, Black Morrocco, to your lists.

With these suggestions, we close now these three articles, with the kiudest regards to our very numerous readers everywhere, whose kind cheer we are so grateful for.

Ithaca, N. Y. Nov. 1871.

Report on Grapes, 1871, with Remarks on Quality.

By Samuel Miller, Bluffton, Mo.

Ed. Pomologist and Gardener:—*Brant.*—The earliest grape, bunch medium, berry small, black, sweet and spicy, vine vigorous, healthy, hardy and productive. The only trouble is the birds seem to claim the lion's share.

Ives, *Hartford* and *Mary Ann*, all a full crop of fine fruit, for the kind, but in my opinion they will soon be displaced by better early varieties, such as Croton, Underhill's, 8½, Brant and Creveling.

Creveling.—A superior grape, but defective in its bunches. If it would be perfect in this respect it would supersede Ives and Hartford, as it is better when half ripe than those when fully so.

Croton—This splendid white grape is about as early as any of them, and so far superior to nearly all that if the vine prove healthy and hardy (which it promises to be) it will be the most valuable grape we have. Not only early, but it will keep well, as I found a bunch on the vine in October plump and fresh. Bunch and berry large enough. My Ives, Rentz, &c., will be grafted with this variety.

Rentz—A large bunch, large berry, brownish black, about as worthless a thing as could well be got up where quality is concerned; yet it is said to make an excellent sparkling wine.

Black Hawk—A week earlier than Concord, but all taken by the birds. Hardy and productive. Some unscrupulous parties have been selling Concord for this variety, as some told me they cannot see a particle of difference between them. I can tell the vines apart a hundred yards off.

Catoctin—A white grape from the Iron Mountain in Maryland. Bunch and berry a little below medium, a very handsome and good grape, and well worth having.

Miles—About as early as any, but the vine is feeble, and the fruit, although very good, is too small both in bunch and berry to ever be popular.

Maxatawny—First crop on my vines, good as usual, but the birds seem to have learned how to eat white grapes, as they destroyed nearly all my Maxatawnys.

Autuchon—One of Arnold's hybrids. Bunch long, rather loose, berry medium. Translucent when ripe, showing the seeds in it, which are small and but few. A rich, spicy, sweet flavor, not excelled by any grape we have. Vine vigorous, hardy and productive, keeps well. Intend grafting largely of this, as it will command a high price on market.

Alvey—Vigorous, hardy and healthy in vine. Productive and of the finest quality; bunch and berry not quite medium. It bas no pulp whatever, very small seeds, skin so thin that it can be eaten like that of a cherry. Superior for wine.

Merimack—With me a poor thing. Rots badly, and not equal to Wilder in any respect.

Wilder—About all that could be desired in a black grape. Vine vigorous, hardy, healthy and productive. Bunch and berry very large and of excellent quality.

Iona—Although this was condemned here a few years ago, it has done splendidly with me for two years past. In quality it certainly is superior to the Catawba, which is saying a great deal.

Walter—A complete combination of Deleware and Diana, and in quality about equal to either. The vine has been healthy two seasons, promises productiveness, and will no doubt be very valuable as a keeping grape.

Eumelan—Vines considerably offected by mildew; the fruit of very good quality, but not as early as I expected it to be.

Cornucopia—Had no chance of tasting, as the birds took all before ripe.

Friend Mark Miller:—Here you have a copy of a part of my grape record as they ripened. It is but a part of the record, and you can have more if desirable for next number.

Remarks.—Let us have it

In the Boston market apples are selling at $3.50 @ $4.50 per bbl. Oranges $15 @ $16, and Lemons $6 @ $7 per box.

Grapes of 1871.

By S. J. Parker, M. D., Ithaca, N. Y.

Ed. Pomologist and Gardener:—Nothing was finer than the grape crop of this region, Ithica, N. Y., until August 1st. Soon after that we noticed an indisposition to ripen. Grapes colored very slowly and those that ought to be ripe Aug. 18th to 20th' went over into Sept., and then failed to be sweet' Wyoming Hdsp. and Walters were not sweet September 20th. From the 18th to the 20th of September, frosts, even solid freezing took place, and the leaves were almost entirely killed. The consequence is, that never, since the grape became an established fruit, has our grape crop been so ruined.

A few Isabellas, Concord, Roger's No. 15, 28, 33, and 41 have been sold. His No. 4 was in excellent condition. Diana Hamburgh, fair. Ionas almost a complete failure. Croton good. Ives' Seedling the ripest of all, as was my new White Seedling.

The ruin has not been as complete in all places as here, yet the same frosts extended, with more or less severity from the east to the great lakes. The grapes are nearly useless for wine, they are good for preserves and jellies.

South of this the crop was early and fair. All our fruit is poor—apples and pears as well a grapes. Though pears have been, *a few kinds*, fair, and sold well. South in Pa., Maryland and Delaware, and Virginia, there was much excellent fruit.

Fresh Grapes at all Seasons.

The Stockton (Cal.) *Republican* says:—"We once knew a gentleman who supplied his table with fresh grapes from one season to another. His plan was to gather when quite ripe the largest and finest bunches of grapes and pack them in saw-dust, using in place of boxes common nail kegs which he purchased for a trifle at hardware stores. After carefully packing the desired number of kegs, he buried the lot in a trench dug in high dry ground beneath a shed where the water could neither fall nor soak in. Before using the saw-dust, he carefully dried it either in the sun or in an oven until it was entirely free from moisture. We never witnessed the packing process, but we know he always had the grapes and in this way he told us he preserved them. After being buried for months the grapes were as sweet and finely flavored as if just gathered from the vines. The process is cheap, and may be easil tested. If it will preserve the grape, a new and profitable business might be built up. Bunches of fresh ripe grapes in the spring would be a novelty, and being that, would command a high price. We hope that some of our grape growers will try the experiment."

Grape Culture--Pruning--Wine.

Mr. L. J. Burrell, has a fine vineyard of 10,000 vines in the Santa Cruz Mountains, in our county. He has made some wine, but is getting out of "wine grapes" as fast as possible, by grafting to the White Muscat of Alexandria, and the flame Tokay. These he sells for shipment to the East. Last year they brought five cents, wholesale, in Santa Clara; the year before eight cents. The Flame Tokay, owing to its great beauty, brings twice the price of the Muscat, but is not one-half as good a grape. He has adopted a new method of pruning, as has also his neighbor, Mr. Feely. They winter prune, leaving about five canes, about five feet long, instead of cutting back to two buds, as in the old method. The summer pruning is simply to cut back the new shoots to within eight inches or a foot of the last bunch of fruit set on the leaders. The laterlas are not molested. By this system, he says that he is sure of getting full double the fruit from the vine or acre as by the old method. This is an item.

Raisin and table grapes will pay from three to five hundred per cent. better than to make into wine. Two pounds of his White Muscats will make one pound of extra fine raisins. Some of his own make of raisins were exhibited at the fair last year, and were equal to the *best* foreign sorts.

As to this system of pruning, our own experience, ten years ago, proved the productive value of leaving more wood and buds than European style allowed. We pruned a vineyard to our own notion, leaving three new canes, about three feet long to each stand. The knowing ones said the vineyard would not produce grapes worth having. We did not summer prune at all. But the vines produced nearly as many again good grapes that year as ever before; indeed, bore so heavily that the same parties declared that the vines were "bearing themselves to death!" But they endured the trial, and bore another equally good crop the following year. But as we left that part of the State, the vines got "scientifically pruned," and, of course, didn't astonish the neighborhood afterwards. —*Santa Clara*, (Cal.) *Agriculturist.*

Training Grapes for the Largest and Sweetest Fruit.

A correspondent of the *Rural Pacific Press* gives the following sound reasoning on training grape vines near the ground for the production of the largest and sweetest grapes:

"Some years since the writer found some bunches of the Mission or California grape of extraordinary size, well filled, equal to the Black Hamburg, in solidity of flesh and appearance. The bunches were lying directly on the ground. The matter was somewhat mysterious. A few days

afterwards I had occasion to sleep in the orchard to keep out unruly stock, and slept on a cot, a couple of feet from the ground. Towards morning the blankets were insufficient to keep up the warmth, but noticing that the ground was still warm, I put the blankets on the ground, and was kept warm and comfortable by the heat of the ground.

The reason of the large grapes was thus made apparent. The grapes lying on the ground were kept in a comfortable condition—no congestion of the lungs, no cold extremities, but all night long the circulation went on filling the grapes with rich juices, almost to bursting.

In fifteen years experience I have invariably found the best grapes near the ground and am a strong believer in low training.

In this country, where there is no rain through the ripening season, no harm can come from the grapes hanging near to the ground, and no stock should ever be left more than eighteen or twenty inches high.

In cultivating the vines, the plow beam and singletrees should pass over the top of the vine, and experience proves that low trained vines may be cultivated at less cost, provided that proper implements are used, than high trained vines."

The Grape Vine and its Tradition.

All traditions seem to have been grounded upon truth; and although for the purpose of history they are generally of little value, on account of the distortions they have suffered through centuries of oral transmissions, the glosses of the poets, and the deliberate perversions of them by kings and conquerers sought to add to their own glory, and their flatterers and parasites to obtain royal favor, as well as the variations engrafted upon the original simple narrative by national self-glorification, and the pride of the race. Yet they are not without their real uses when they are considered from a moral point of view. There can be no doubt, it seems to us, that the wise men of pre-historic times made extensive use of tradition as a vehicle for the instruction of youth in important moral truths, and by means of so agreeable a method, impressing upon inexperienced minds valuable lessons in the affairs and conduct of life. The following tradition of the vine seems peculiarly adapted to the illustration of our idea:

"It is recorded by an early writer that when Adam planted the first vine, Satan approached it, and said, 'Lovely plant! I will cherish thee.' Thereupon he slew three animals—a lamb, a lion and a hog. He then poured the blood, first of the lamb, then of the lion, and lastly of the hog, upon the roots of the vine. The blood of these animals is in the fruit of the vine to this day. So, if one takes a single draught of wine, he is cheered by it, and becomes mild and docile like the lamb. If he takes the second draught he becomes furious, and raves and bellows for destruction like the lion. On taking the third draught, reason, sense and strength are gone, and like the hog he wallows in mire." The simple and impressive lesson thus taught is not easily forgotten.—*Cor. Mobile Register.*

Raisins vs. Wine.

The California Agriculturist says: "The Zante currant, or raisin, is being cultivated on trial in this State, and promises to become an important accession to our vineyards. It yields finely wherever tried. As fine raisins have been produced in this State as ever found a market. Our friend, Mr. Burrell, in his mountain vineyard, has made from the White Muscat of Alexandria grape very superior raisins, two pounds of grapes making one of raisins. He finds it some ten times more profitable than wine making, and is converting his wine grape-vines to the best raisin grapes, by grafting. There is no enterprise that promises a surer remuneration than the planting of raisin and table grapes for Eastern markets, and yet but little attention is being paid this culture, nearly every planter of vineyards thinking chiefly of wine and brandy making. But the few who quietly and conscientiously apply themselves towards consummating a healthier condition of things, will reap a rich reward for their honest and worthy efforts in a good business, and a noble cause."

Wine Tax in California.—The *Pacific Rural Press* says: The revenue law of the State taxes wine as personal property, and as the grower must of necessity keep it on hand two or three years before it is ready for market, he is compelled to pay two or three taxes—or a tax each year. This operates to the discouragement of vinters. It is thought that it is but justice to this class of our producers, that the law should be so changed as to impose a tax on sales only.

Mammoth Grapes.—The Amador (Cal.) Ledger of the 4th ult., says: We were shown last Saturday, by S. H. Bartlett, who resides about five miles from this place, a single bunch of white grapes that weighed ten pounds when it was cut from the vine. Besides being a monster bunch, the grapes were large and of a delicious flavor."

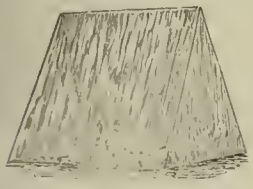
Fox Grape for Wine.—Mr. Longworth, the American pioneer in wine making, once said: "If twelve ounces of pulverized loaf-sugar be added to the gallon of must, it will make a fine dry wine. If twenty-four ounces, a delicious sweet wine."

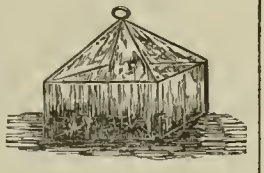
The Vegetable and Flower Garden.

The Vegetable Garden.

By W. H. W., Hartford Co., Conn.

Hand-glasses, Plant Protectors, &c.—These are often found very useful in a variety of ways. Hand glasses serve as a means of forwarding plants, in small numbers, where the regular hot-bed is not desired, or it is inconvenient to use it; also for forcing single plants after trans-planting. A hand-glass is a miniature glass house; they are made in different forms, the bottom usually square or a parallellogram. A frame of iron, or sometimes wood, is had to hold the glass. One form is to use four glasses put together in the form and shape of the roof of a house, the ends in the form of a triangle the two sides square, coming together at the top with a handle, for convenience of handling, &c.





Another form for somewhat larger ones is, make the four sides equal and about eight inches high, from the bottom to the eaves. On this erect the roof, each side in a triangular form coming to a point at the top, with a ring to lift about by. Such frames are best made of metal, and may be of any desired size, from two feet square down. These can be used as miniature hot-beds by using a wheelbarrow load or two of manure, for bottom heat. For general use, they will be found most valuable in starting small seeds, the plants from which are to be transplanted, and forwarding plants which need a little nursing or protection. Oftentimes we wish to protect our cucumber and other vines, plants, &c., from the depredations of bugs or other like insects, also from cold winds, &c. Here a few boxes without top or bottom become very useful; these need not be large, from 6x6 to 10x12 inches, and as many inches deep. A piece of board to put over the top of these, when they are set over the plants will protect from frost, &c. Bugs will not fly into them to reach the plants; and if we wish to obtain nearly the same results as with hand glasses, we can tack a piece of light colored muslin over the top, and make the bottom close by settling it a little into the ground, or by hauling the dirt around close.

Persons who wish to grow vegetables, fruit plants, flowers. &c., during winter, to mature out of season, will have Green Houses in which to grow them. This comes beyond the scope of our purpose in these suggestions, as we only have in mind the mass of general cultivators of a vegetable garden, and it is more particularly for their encouragement that we make these hints to conform to their means and circumstances.

Hyacinths all Winter.

The Hyacinth is one of the most beautiful and fragrant of the Bulbous Flowers, and particularly desirable for house culture. Even half-a-dozen grown in pots and flowering during the winter, will afford more pleasure to the "loved ones at home" than the same amount of money spent in any other way. With how much pleasurable anxiety they watch the shooting forth of the bright leaves, the rising of tae stately column; while the opening of the first bud makes a joyful thanksgiving of the most dreary winter's day. A very small pot will answer for the Hyacinth. Some prefer to plant three or four in a large pot, and this will make a very pretty ornament. Cover only the lower half of the bulbs with soil, press them down until they are nearly covered, then water until the soil is moistened thoroughly, and set the pots in a cool, dark cellar. The roots will there form, with but little growth of top. Here they may remain for several weeks, and a pot or two at a time can be taken into a warm, light room, for flowering, a week or ten days apart, and a succession of flowers obtained during most of the winter. When Hyacinths are planted in the garden, and well covered, the roots get a good start in the fall and winter; and it is very important in flowering them in the house that a growth of roots should be first encouraged in the way recommended. When placed in glasses of water for flowering, the base of the bulb should not quite touch the water. Fill the glasses with well water, and as soon as the flower buds appear, sprinkle the plant frequently with rain water. Set them away for about two weeks in a

cool, dark room, until roots are formed; then remove to a light, moderately warm room, and give plenty of light and air. Keep Hyacinths in the coolest room you have, anything above freezing will answer, and near the light. Flowers of the Hyacinth are often ruined by bringing them into a very hot, dry unventilated room. Our plan is to keep a stand containing our stock of Hyacinths in the parlor, which is kept most of the time but a few degrees above freezing. From this room they are taken as needed—one or two of each color—to the sitting room, or the dining room, for special occasions, but always return to their cool quarters for the night. By this method they not only flower well, but keep in bloom a long time. Change the water occasionally, if it becomes discolored.—VICK.

Rubus Odoratus or Flowering Raspberry, &c.

ED. POMOLOGIST AND GARDENER:—Permit me to make a few inquiries through your Journal.

First. Where can I obtain rooted plants of *Rubus Odoratus* or Flowering Raspberry, *Rubus Chamæmorus* or Cloudberry, called also sometimes Knotberry, *Rubus Triflorus* or Dwarf Red Raspberry, *Rubus Setosus* of Bigelow, (*Rubus Hispidus var. Setosus* of Torrey & Gray,) *Rubus Trivialis* of Michoux, or Low Bush Blackberry, *Rubus Caneifolius* or Sand Blackberry, and *Rubus Hispidus* of Linnæus, or Trailing Swamp Blackberry.

As an amateur horticulturist, it is my wish to have all these on my grounds with other species of the genus, foreign and native. I find I have omitted one species, to me not accessible—given in Wood's Botany as *Rubus Vutkonus*, though not mentioned by Beck.

Second. Can any one tell me which of the cultivated Red Raspberries belong to the *Rubus Strigasus*; and is not the Ellisdale a hybrid between the American Red and the Black Caps?

Third. What species of the Blackberry section of the genus *Rubus* are now in cultivation, and by what names are they known to cultivators?

Hiawatha, Kansas. C. W. JOHNSON.

Garden Moles.

ED. POMOLOGIST AND GARDENER.—Every garden is more or less troubled with moles, and every house-keeper is under the necessity of watching out for rats, and almost everybody knows how troublesome they are when they take possession of a house, granary or cellar. I have found that *potash* placed in their holes, runs, or places of resort, effectually cleans the premises in a very short time. I had the pleasure of seeing one large mole which had helped himself to a small dose of potash found in his walk, and he looked like a dilapidated and superanuated scallawag. I dont think he ever troubled any body's garden again. C. B.

Nauvoo, Ill.

Entomology.

DR. S. H. KRIDELBAUGH, EDITOR, CLARINDA, IOWA.

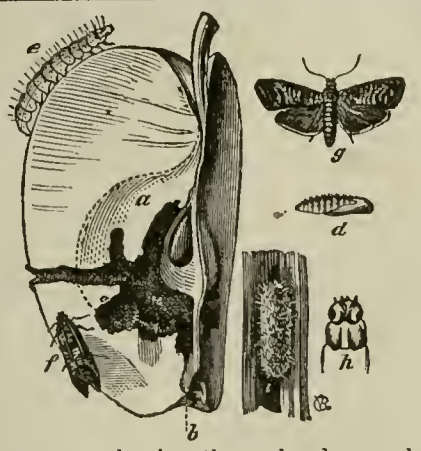
☞SEND IN THE INSECTS.—Dr. K. is chairman of the Committee on Entomology for the State Horticultural Society, and would take it as a favor to be furnished with specimens of insects from the various localities of the State, by mail during this year. Those sending will please state all they know concerning the habits of the insects sent; what they are found feeding on, etc.

The Codling Moth or Apple Worm.--(*Carpocapsa Pomonella.*)--Its Natural History.

BY D. B. WIER, LACON, ILL.

ED. POMOLOGIST AND GARDENER:—The worm that is so destructive to our apples is the caterpillar or *larvæ* of a beautiful little moth, known to entomologists as *Carpocapsa Pomonella* order, *Lopidoptera* family of *Fortricidæ*. Knowing from experience that if we are well acquainted with all the habits and changes of an insect, and the exact time at which it undergoes certain changes, the better we are prepared to combat or destroy it. I will therefore give a full description of this most noxious insect and the time of its changes *here*. Persons living farther south should add I think about a week for each 100 miles they are south of this point, *i. e.* the moth will come out a week earlier 100 miles south of here, two weeks 200 miles south, etc., and north of here a week later for each one hundred miles. But a more certain rule to go by is, that the moth leaves its cocoon as the apple blossoms fall, and commences to deposit its eggs in the blossom end or calyx of the young apples 4 to 6 days thereafter. We will now follow an egg and its produce throughout a season.

I use Mr. C. V. Riley's, (State Entomologist of Missouri) figures, and in part his descriptions. Letter *a* in the engraving represents a section of an apple which has been attacked by an apple worm, showing its burrowings and channel of exit at the left; *b* the point where the egg is always laid on the young fruit, where it is hatched, and the dark line shows where at this time the tiny little worm burrowed its way into the fruit, where it feeds on the pulp and substance of it for 32 to 36 days when it becomes full grown, and makes its exit through the channel to the left, appearing at this time as at letter *e*. The worm while young is yellowish white with a black head, it is a true nearly hairless caterpillar, having six horny legs near the head, eight fleshy legs near the middle of the body, and two at the posterior extremity. All other grubs found in apples, such as the larvæ of the Plum Curculio, etc., have no legs. As the worm matures it acquires a pinkish color, many of them being of a bright pink when they emerge from the apple, especially about the head.



The worm on leaving the apple—does so always in the night—at once seeks a safe place in which to spin its cocoon, in which to undergo its transformations. Its instinct is such that it will find a *safe* place if there is one within its reach. When it finds the most suitable place it covers itself first with material from the surface on which it is on, then with a fine silken web spun from its mouth; then appearing as at *i*, and called a cocoon. As soon as its cocoon is finished it changes its form into a chrysalis, as figured at *d*, and in from 14 to 17 days, this chrysalis changes to a moth as figured at *j*. The moth is the prettiest and liveliest of all the small moths, and may at once be known from any other small moth by its having bright bronze or gold colored markings on the ends of its wings, which glisten in the light like dark burnished gold. It is seldom seen, as it is in motion only late in the evening or night. I have been in large orchards constantly for 30 years, and have never seen but one specimen, except those I had bred from the worms. The moth remains closely hid during the day. The moths of this first brood pair at once, and the females soon commence to deposit their eggs on the apples. They do not use the calyx or eye of the apple exclusively for this purpose as did their parents of the first brood, but use also every scar, or puncture of other insects, or where two fruits are in contact they insert their eggs between them. The eggs immediately hatch and the young worms burrow into the fruit, feed and grow, and in a few days over a month get their growth, come out and seek a place to spin up in as before described. A small portion of the earliest of this brood change at once to chrysalides, and come out in fifteen days a moth, and lay eggs for a small third brood of worms. But the great majority of them remain as worms until the following spring, when *here*, about the first of May, a little earlier or later owing to earliness or lateness of the season, they change to chrysalides and then to moths ready for another season's destruction.

We have followed the apple worm through a season, know its periods, changes and habits. Now, how shall we destroy it? We cannot destroy it in the moth state, for as it does not feed, we cannot poison it nor drown it. It is not attracted by lights in the night, so we cannot burn it. It is so snugly hid during the day that we cannot find it to kill it. While it is still feeding in the apple, we could only destroy it by picking off the apples, and destroying both to gather; but this would be too tedious, so the only chance that remains for us is to attack it is after it leaves the apple and before it becomes a moth. Luckily for us our chance for a wholesale destruction of it at this time is good. As before observed, when it leaves the apple its instinct teaches it to at once find a retreat out of reach of its many deadly enemies in which to spin its cocoon. With many caterpillars the cocoon itself is a sufficient protection, but not for this. The silk of its cocoon is papery and tender, and as the worm is a rich little tit bit for any insectiverous bird, large ant, spider, or other carniverous insect, it will find a crack or crevice where it can stow itself away out of reach of these deadly enemies. For some reason of their own, the worms of the first brood will not accept of a shelter, no odds how complete it may be on or near the ground, if it can possibly find one a little removed from it.

It has been stated as a fact by professional entomologists, that the apple often falls to the ground with the still immature worm in it, and that hogs and sheep should be kept in the orchard to eat up the fruit as soon as it falls, worm and all, and thus destroy it. This is not the fact, and is liable to mislead. The apples do not fall from the tree with the worms of the first brood in them, except it be a few of the earliest maturing apples. The apples are usually killed and eventually fall off, but not until after the worms have left them. Many of the apples of some varieties wither and remain on the trees until the next spring. Here about the 12th of June, the earliest worms reach their growth, and leave the apple during the night, and either let themselves down by a web to the ground, and then seek the trunk of the tree, or crawl down the trunk seeking a shelter to spin their cocoons in. The natural shelter provided by nature is the dry scales of dead bark that have warped their edges away from the trunk, and the fissures in this old bark. This shelter is poor even on old trees, and on young ones scanty and poorer. Now if we in our kindness or "otherwise" provide the poor, defenceless, timid worms with a perfect shelter, a regular Astor House as it were, compared to anything else, they would be likely to find we will get them *all*; yes, I say ALL, and mean it for our guests, and we can kill them with ease. Such a shelter we have in Thomas Wier's Apple Worm Trap, the joint invention

of two practical orchardists, who have devoted much time and study to this insect, its habits, and means for its destruction

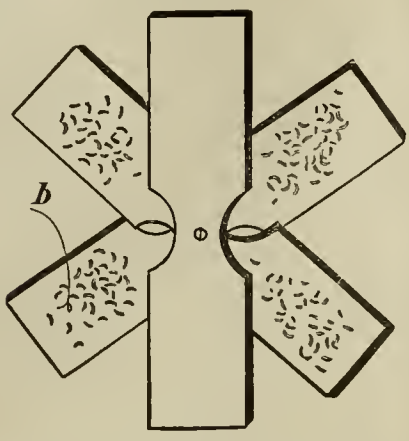


Fig. 2.

This trap as we call it, the patent on which bears date of October 10th, 1871—and we would say here, that the patent covers the *whole* ground for a construction of this kind completely, for this purpose, and that the owners intend that their rights under it shall be respected—may be constructed of thin boards of most any kind; fresh green pine timber will not answer, owing to the turpentiny sap being offensive to the worms, and perhaps a few other kinds of wood might have the same objection. Old pine shingles, those from an old roof are excellent, pieces from a foot to twenty inches long and placed in contact and fastened to the tree.

The best practical form we have been able to devise is shown by Fig. 1. It is made of old shingles 3 or more pieces, varying slightly in width, the narrowest is placed next the tree and then the next widest one next that, and so on. They are then fastened firmly to the trunk of the tree just below the branches, sheltered from the noon day sun or on the north side of the trunk, by the screw or nail *a*. The straws *b* are placed between them, not particularly to keep them slightly apart, but they appear to act as a great help in guiding the worms between them. The traps are cut out as at *c*, so that the worms will be exposed when the parts of the trap are turned apart as at fig. 2, which shows a trap turned open on the fastening *a*, so that the worms may be killed, which may be done in any thorough and expeditious manner. I draw the point of a sharp knife through the cocoons. A quicker and more economical plan would be to scrape them off into a pan and then feed them to poultry.

WILL THIS TRAP SAVE OUR APPLES FROM WORMS?

I can answer unhesitatingly *yes*. If the above history of the insect and its habits are facts—and I know that they are—any one can see at once that this trap can be made an instrument for their destruction. I have given it a thorough test in my extensive orchards, the past season, and know it to be effective. Others have done the same. All who have studied the insect, or that have tried other means for its destruction, who have seen this trap and had it explained to them, have exclaimed at once that it was right in principle and construction, and were confident that if it were properly used it would make a clean sweep of this most pernicious foe to the orchardist.

COMPARISONS.

We have at different times during the summer made thorough trials with this trap in competition with the two other most highly recommended plans of destroying the worms—namely, carefully prepared and placed cloth and hay bandages. These trials were full and complete, more so for the reason that I could not believe in the results of the first trial, as I had hung my faith on the cloth bands. I give the number of worms of the first brood, caught by each method on 39 Raule's Jannette trees in full bearing, trees of the same size, age, and quantity of fruit, or as near so as we could select them.

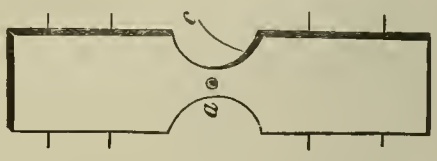


Fig. 1.

Cloth bandages, 0, 0, 0, 4, 1, 4, 3, 1, 5, 2, 3, 3, 0—27.
Straw ropes, 4, 4, 5, 4, 0, 6, 2, 3, 1, 0, 4, 2, 1—36.
Wier's traps, 10, 4, 2, 4, 8, 6, 8, 4, 4, 10, 18, 6, 10—74.

These are the numbers of the first brood caught June 23d and July 1st to 6th. When the second brood began to spin up, from the middle of July to the middle of August, in an orchard where none of the *first* brood *had been caught*, we found from 43 to 188 in a trap at the end of each ten days.

Repeated trials averaged the same result, but this is not all, we found it at least ten times the labor to place the hay or straw ropes on the trees, take them off and hunt the worms out of them, as it was the cloth bandages; in fact we found this plan entirely impracticable; and at least four times the labor to take the cloth bands off, kill the worms and replace them that it was the wooden traps. Besides we found that the worms would gnaw the cloths all to pieces in one season, and they would have to be renewed at least in part each season, while the wooden traps were the better of use, and would last as long as the material of which they were made.

THE LABOR REQUIRED TO SAVE A CROP OF FRUIT.

An ordinary hand, with old shingles at hand can make and place upon the trees from 200 to 300 traps in a day. The traps can be made and placed on the trees at any time during the winter or spring, and 40 days after the first blossoms fall they should be attended to, opened and the worms killed. The quickest and best way to do this is to have a large tin pan bent in on one side, so as to fit closely to the trunk of the tree. When you reach the tree drop upon your knees, place the depression in the pan against the trunk of the tree, hold it there by pressing your body against it, and you have both hands free to open the trap. When opening it many of the pupæ or chrysalides will fall into the pan and some of the worms. Kill the rest or scrape them into the pan. The trap must be turned clear around, as many will be found between it and the bark of the tree. A person will open and kill the worms in from 400 to 800 traps in a day. This opening the traps and killing the worms must be repeated in two weeks for at least three times. The great effort must be to kill ALL of the first brood of worms. If we get *all of them* there will be *no second brood*. The first brood of worms do practically no other harm than the laying of eggs for the second brood. The fruit destroyed by the first brood is of no consequence. Its destruction in an orchard in full bearing is of benefit in the way of thinning the fruit of our over-burdened trees. It is the second and the partial third brood that makes all our wormy apples, causes all our windfalls (?) in the stillest weather. I care nothing for the destruction of what is left of the second brood after killing all I possibly can of the first brood, for the reason that I do not believe in the complete destruction of this moth by any means whatever, but it is well enough for those who have the time, to visit their traps every two weeks and kill the worms, from the middle of June until the apples are all out of the orchard.

GREELEY ON CIDER.—When Horrace Greeley was out in these "diggins," last fall delivering agricultural addresses, he told us Hawkeyes that we must have a wind mill on every knoll to raise water for irrigating our famishing crops. We have since learned how Mr. Greeley would have us make cider. Here it is: "Select none but the soundest turnips, chopping them into sled lengths before cradling them. In boiling your cider use plenty of ice, and, when thoroughly boiled, hang it up in the sun to dry."

FIVE DOLLARS PER QUART.—A correspondent of the Small Fruit Recorder don't think the Mexican Strawberry can be raised for less than five dollars per quart. We doubt not that his conclusion is about right.

Miscellaneous.

That Nebraska Circular.

We have before us a circular from Nebraska with the signature of J. W. Pearmain, which we wish to make a few remarks upon. If this circular had not referred to the *Prairie Farmer*, Chicago *Tribune*, and the Nebraska delegates to sustain it, we should not think it worth a notice, although we do not believe they feel much honored in having their names used in connection with it. Who Mr. Pearmain is, or what his objects were, we do not know neither do we care, but we do think it would have been much to his credit to have used more becoming language respecting the Kansas and Iowa fruits at Richmond, Virginia, in a controversy with other States, than the followin

"No sooner had the premiums been awarded than Iowa and Kansas rush to the associate press and announce to the world that Iowa takes the *first* premium and Kansas the second, for the best fruits on exhibition Luckily, however, these premiums were *special* ones offered by Messrs. Ellwanger & Barry, of New York, and Mr. Brighton of Virginia. The dispatch no doubt was intended to convey the idea that these *fifty* and *twenty* dollar premiums were the crack premiums of the society, but such is not the case."

"These *special* premiums are like *side shows* at a big circus The monkeys are in the side show, while the elephant is the centre of attraction. Iowa and Kansas were the monkeys in the show at Richmond, while Nebraska is *the* elephant, and gets *two dollars* to their one. And now that the truth is known through the *Prairie Farmer*, as well as from the lips of Messrs. Furnas and Masters, our representatives at Richmond, I trust brother Wilson will make the correction and let the people in and around Des Moines know that Nebraska stands as the banner fruit growing State of this Union, while Iowa and Kansas are only tolerably good second rate fruit growing regions, and did actually play the part of monkeys at the great show."

We have given enough of this circular to show that Mr. Pearmain has attempted to show that Iowa and Kansas took *special* premiums, therefore they "are like *side shows* to a big *circus*." To sustain these views he has proven too much and shown that Nebraska had also taken a "*special* premium" by giving the report of the committe on "*special premiums*" who made the award offered by the "*Virginia Agricultural Society*;" therefore according to his own argument, proving that Nebraska, "luckily, however," took a "*special*" premium, and had also been a *side* show.

He further says: "Let the *Homestead* man also state that the Iowa and Kansas fruits were exhibited under their State Horticultural Societies, and thousands of dollars of public money were spent in getting up their collections." This statement proves that Mr. Pearmain is entirely destitute of concientiousness, or that it has become so blasted that he cares but little what he says. We were one of the delegates from Kansas who helped to collect the fruit and went to Richmond, and we know that not one dollar of public money was spent in collecting or exhibiting the fruit, but that each of us

delegates paid our expenses out of our own individual means.

Mr. Pearmain requires another correction before we can let him pass, namely: That Kansas announced to the world that she took a "second premium," when in fact she took no such premium.

We have so far said but little respecting our fruit at Richmond, but from the unblushing character of this Pearmain circular, we are forced to show its character and vindicate our own cause. And to do so we will refer you to disinterested papers published at Richmond, and eye witnesses of the exhibition. And we will here quote from one of the Richmond daily papers, the *Dispatch* of September 9th:

"The highest premium given by the Virginia State Horticultural and Pomological Society was awarded to Kansas. It reads as follows:

Virginia Horticultural and Pomological Society:

This Diploma is awarded to Messrs. Wm. M. Howsly, J. Stayman and F. Wellhouse, delegates of the State Horticultural Society of Kansas, for the largest display of fruits, unexcelled in size, beauty and excellence, exhibited during the session of the American Pomological Society, September 1871, exhibited at the Fair of the Virginia Horticultural and Pomological Society, held at Richmond, State of Virginia, on the 6th, 7th, and 8th of September, 1871.

JNO. M. ALLAN, *Pres.*

H. K. ELLYSON, *Sec.*

"In addition to this award, L. H. Frayser, Esq., of this city, complimented that distant State by the presentation of a box of superior chewing tobacco as a further evidence of the estimate placed upon the fruits exhibited by Dr. Stayman, Dr. Housley, and Mr. Wellhouse, which fruits, for size, beauty and excellence, were most conspicuous. This presentation was also made through the Virginia Horticultural and Pomological Society. It is proper to add that Kansas was not a competitor."

Now that the truth is known through the *Richmond papers* and the *Diploma*, I trust Mr. Pearmain will make the correction, and add the facts to his next circular as a supplement.

ASSOCIATE ED.

REMARKS.—We received a copy of this Pearmain circular some time since. We found it so discourteous and so destitute of truth, and even self-respect, that with pity for its author cast it aside, as did Uncle Toby the fly in the mail-coach, and with the same injunction, "Go in peace poor *devil*, &c." But, for reasons given, our Associate has seen fit to expose its consummate absurdities.

That Iowa made the best show of apples at the Richmond meeting is notorious—a fact fully conceded by a most competent committee, and by all who witnessed the exhibition. The collection of 118 varieties from Central Iowa, presented by us, and to which was awarded the highest premium for the best display of apples, was made up of the most prominent and valuable sorts grown in the West, and correctly named. It embraced no wild-cat seedlings, or unknown sorts. The Richmond *Dispatch* of September 7th, said: "Iowa, we think, takes the lead in the apple department." The *Horticulturist* for November, says: "Iowa seemed to win special admiration for her display of apples." And we might fill a whole page with quotations no less complimentary from other sources. It strikes us that a certain long eared animal is made to play more conspicuous in this Pearmain matter, than either the "elephant" or the "monkey."

A Western American Pomological Society.

It is proposed that all the States and Territories west of the Mississippi and east of the Pacific Ocean, and from the Lakes to the Gulf on the south, be organized into a Pomological Society, to be known and called by the name of the *Western American Pomological Society*, or some other suitable name.

The recent exhibition at Richmond, Va., shows most conclusively, that west of the Mississippi is, at least for the present, the fruit growing region of the United States. The vast tract of country to be supplied west of the Mississippi, and the efforts now being made for the development of this interest imperatively demand that the fruit growers of the United States, and especially of the West, meet oftener than once in two years.

The meetings can be so arranged as not to conflict with those of the American Pomological Society, already in operation, but for each to meet alternate years—having the western one in the fall of 1872, at such time and place as may hereafter be agreed upon by the friends of the enterprise.

The fruit growing interests of the country would be still further advanced, in our opinion, by organizing a similar Society out of the States lying east of the Mississippi, and west of the Alleghany Mountains, holding their meetings in the same years as those west of the Mississippi, but at a different time in the year. Thus a very large amount of enteresting matter could be gathered for the grand meeting of the American Society at Boston in 1873, or elsewhere in other years.

We are anxious to have the opinions of leading Pomologists over all the scope of country above specified. Gentlemen, let us have a free and a full discussion of this matter, through all the Horticultural journals, especially of the West.

It is not intended by the foregoing movement to interfere in the least degree, with the interests of the parent Society, but on the contrary, to act in harmony with it in the fullest sense, so as to make its meetings the more far-reaching and interesting. This course is now being taken and acted upon by many of the State organizations, both agricultural and Horticultural. In conclusion, we would remark that the distance from the Pacific to *Boston* on the Atlantic, is quite a long one, and the amount of money required is an important item with the many who would like to attend those meetings, but are deterred in consequence of the heavy expense required to perform the journey.

COR. ED.

Cuttings and Cions.

If intended for planting in spring, either currant or gooseberry cuttings may be separated from the parent stock any time during the winter, the later the better, though before the buds swell. Both take root so readily and open their buds at a temperature so low, if cut in early winter and stored in a cellar, they are liable to start into growth before they can be put out in spring.

Grape cuttings in this latitude, as a general thing should be made late in November, or early in the following month. Cions of the apple, cherry, plum and pear, for either root grafting in winter, or for top grafting in spring, should be made in early winter—as soon as the leaves drop and the wood is thoroughly hardened up. We think it better not to cut before the very last of November, or early part of December. For the preservation of cions and cuttings there is no kind of packing material equal to saw dust of about the same degree of moisture as when it comes from green timber. To winter currant and hardy grape cuttings, such as Concord, decidedly the best plan is to bury them in the open ground in moist earth, where they will freeze, and be kept in that condition until ready to plant, which should be done without delay after the frost leaves the ground in spring.

The Strawberry---Winter Protection.

After the ground is frozen to the depth of four or five inches (not before) give the plants a covering of two to three inches of coarse straw or prairie hay, evenly spread. It should be understood that frost alone does little or no injury to the strawberry. It is open exposure to the dry winds and to alternate freezing and thawing that destroys the unprotected plants. First let the ground be frozen, then give it a covering such as will screen the plants from the sun and the extremes of winter weather, and you give just the needed protection. If the covering is applied too early in the fall there is danger of smothering the plants, for if followed by a spell of wet weather, or a fall of snow, the crown of the plant is liable to rot. The ground once frozen and the covering applied to retain the frost, there need be no apprehension for the safety of the plants so long as the ground remains frozen. Nor should there be haste in removing the covering in the spring. It should not be disturbed until hard spring freezes are past; and even then the finer portions of the straw should be worked down under and around the plants to serve as a mulch to retain the moisture of the ground. No plant likes a cool, moist footing better than the strawberry or is more benefitted by mulching.

The Goff Apple.

Friend Miller:—In the Pomologist for October, you say: "But the *Goff*. Oh! what an intolerable sour thing. Why! the very recollection of it puts our teeth on edge. Perfectly awful! pray don't afflict us with any more Goffs."

Well, I won't. But I am going to appeal from your decision to a higher court—that of your wife, to whom I intend to send a basket of the Goff apples next August or September, if I don't forget it; and she can make the best apple pie or tart, or other apple cookery, of any apples ever brought into Des Moines, I think. Who ever before heard of an apple being *too tart for cooking*, when there is no crabbed, unpleasant taste to it other than acid? I like a sweet baked apple, but I do not like a sweet apple pie. The Alerson's Early is about the same flavor of the Goff, and that I consider the best early pie apple I have ever found. You remind me of the Minister, who had received some cranberries from a friend, and not being acquainted with that kind of berries, tasted them and thought they had soured, and threw them out.

Mr. Aldrich, of Illinois, once wrote me that he used to market apples in Providence, R. I., and said he could always sell very tart apples for cooking much better than he could mild, pleasant, eating apples—that our women want tart apples, and no matter how tart they are. I have said thus much in praise of the Goff, because it is *a noble, healthy, hardy and productive tree*, and because the fruit is very large, fair and handsome, and one of the finest market apples that I raise.

Suel Foster.

Muscatine, Iowa.

Remarks. — Let 'em come—we'll abide the decision.

Fruit in Minnesota.--Deep Planting.--Manure Conducive to Blight.

Ed. Pomologist and Gardener:—No doubt some of your readers may be interested in knowing the results of the fruit crop in Minnesota the past season, especially so far north as the 45th parallel of latitude. The season has been all that could have been desired—just rain enough and no more from April to October, though temperature has been changeable. Farm crops were never better and fruit far beyond our most sanguine expectations in profusion, size, quality and growth of trees. But blight made its appearance in my orchard, and did some damage in that portion set with yearling trees two years ago. The land upon which this portion of my orchard stands is naturally very rich, and has also been highly manured and kept under a high state of cultivation up to the present time. On it are about fifty varieties of the apple on trial Some varieties suffered more than others, but none were entirely exempt.

For the first time in this State, I have this season had the pleasure of eating pears of my own raising. They were the *Flemish Beauty*, the only variety in my orchard yet old enough to fruit, though equally hardy and promising. No doubt in time we shall grow the pear in great profusion in Minnesota. As yet I have fruited but four varieties of the old named apples. Some varieties that have failed with me have done well with some of my neighbors, whose soil is stiff clay—my soil being deep and rich underlaid with clay. Until I adopted the plan of deep tree planting but very few varieties succeeded. But with deep planting, so as to reach the clay at once I have experienced but few failures, and have got a more healthy growth of wood at the start. I now intend to again try many of the rejected varieties. The varieties of the apple doing best in this vicinity are the Duchess of Oldenburg, Haas, Fameuse, Tetofski, St. Lawrence, Plumbs' Cider, Golden Russett, Perry Russett, Winter Winesap, Sops of Wine, Red Astrachan, Fall Stripe, Blue Pearmain, and a few others I cannot name of the old sorts, with a great variety of new seedlings, many of which are very valuable, and of which I may make further mention at another time.

As to the relative value of the varieties named I should say in their order—*Duchess*, *Blue Pearmain*, *and Fameuse* for profit—the others to be grown more sparingly. Of cherries, the Early Richmond and the Carnation do best. The sweet cherries are no go—do not succeed at all. As to grapes we grow a great variety, more demand for Concord vines than any other sort. But the Iona outstrips in quality and fruitfulness, though some of Rogers' Hybrids give great satisfaction. The Eumelan fruited with me this season for the first. It is the earliest of all my grapes, is of first rate quality, and will hang on the vines without dropping until the latest of grapes are ripe. Its wood ripens up better than that of any other vine, the Croton only excepted, though the latter has not fruited with me yet. Of Raspberries the Doolittle and Mammoth Cluster do best—producing enormous crops of good fruit. The Wilson Strawberry is a general favorite about here, but on my black loam falls far behind Green Prolific and Downer's Prolific in size, flavor and *productiveness*, nor does it stand drouth so well.

PETER M. GIDEON.

Excelsior, Minn.

Frozen Apples for Cider, &c.

EDITOR POMOLOGIST AND GARDENER.—In your September issue, Dr. James Weed asks—"I should like to have some one explain why the apples could endure fourteen degrees of frost without the slightest injury, and be completely ruined by ten degrees."

The first freezing was an imperceptible injury, but sufficient to enable the second freeze, although lighter than the first, to bring ruination.

We cover our tender grape vines at the approach of winter, so that they shall not be killed or injured. One freeze, if it lasted all winter, would be of but little injury, but thawing and freezing a number of times is what does the mischief.

Again, the Dr. asks, "Would the frozen apples * * * answer for cider?" Yes, my experience is, that frozen apples make the best cider, the most of it, and the best keeping. I make it a point to freeze the apples to make cider for winter use, and freeze a portion of the water out of the cider for still later use.

I only know these things from seeing them, the same as I see and know that a blade of grass grows, but all the causes lying behind the growing I do not understand.

Vernon, Iowa. WM. P. LIPPINCOTT.

More About Plums.

ED. POMOLOGIST AND GARDENER:—After I wrote you on my return home from the State Fair, in regard to those plums I took there for a name, I learned that to me was awarded the *premium* for the best show of plums. As I learned through the *Pomologist* that you did not have the pleasure of seeing or naming them, certainly I could not have asked of the committee a better name. The committee must have come to the same conclusion that I did—that there was but a faint resemblance between the "Lombard" and "Smith's Orleans."

I very much doubt if there is any plum equal to it for hardiness, productiveness and other good qualities for cooking and table, to be found in the North-western States.

I have received several letters from different parts of this State and from Minnesota, which have the right ring. The writers must be subscribers to the *Pomologist and Gardener*. They write that the description of the "Smith's Orleans Plum" in the last No. of the *Pomologist* is just what they have been looking for—that we must have fruit that is adapted to their cold climate. That is the true course. Cultivate no fruit that is not adapted to our climate.

In order to accomplish this desirable object, let every farmer and gardener in the Northwest subscribe for the *Pomologist and Gardener*, and communicate their experience with fruit through its columns, for the mutual benefit of all. Had this been adopted ten years ago, the State of Iowa would today be thousands of dollars better off in regard to fruit. But it is never too late to do good. Let the farmers commence the good work.

S. D. REDFIELD.

Vinton, Benton Co., Iowa, Oct. 25, '71.

Notes and Gleanings.

Canning Apples. — An exchange says, "if you have a quantity of self-sealing empty bottles, and you wish to prepare a large quantity of apple sauce and to have it until spring, an excellent way is to bottle it. Prepare the sauce according to whatever rule you wish; when boiling-hot pour into the bottles and put on the covers immediately."

We have practiced this same method for three years with perfect success. Nor is it important to use self-sealing bottles. We use any kind of stone jars (though narrow necked ones are most easily closed up) from a quart to three gallons. First, set the jars to be filled into an oven and heat *hot*, pour in the hot sauce, cover the mouth immediately with cotton cloth and tie tight; have a circular piece of pasteboard the size of the top of the jar ready; dip it in a vessel of hot sealing wax and place it immediately upon the cloth-covered mouth and press down tight all around; lay upon this another piece of cloth and tie down tight. Thus sealed, apple sauce will not only keep perfectly good till spring, but will have a finer flavor than that made in the spring from apples kept through the winter.

Stark and Kansas Keeper.

D. B. Page, Clinton, Mo.—We do not positively know that the "*Kansas Keeper*" is the same as the "*Stark;*" we were led to believe so from the description of the Stark corresponding so nearly with the Kansas Keeper, and from what Dr. Warder said when he saw it at our place. If what we saw at Richmond, Virginia, was the Stark, then the Kansas Keeper is not it. The Kansas Keeper does succeed well as far as tried here, and we think it a valuable apple but not of the best quality.

The Stark we have never seen growing and do not know of a tree bearing, but have no doubt it will succeed here, as nearly every variety does, as well as in its native home. Should be pleased to have either a specimen of fruit, or scion, or both to test, and see if it is really the same as our Kansas Keeper. Associate Ed.

The Philosophy of Pruning.

Ed. Pomologist and Gardener:—On the subject of pruning there appears to be a great diversity of opinion. The old notion of heading-in and pruning at the time of transplanting is persistently adhered to by a great majority of those who set themselves up as teachers. But there is now and then one who makes a bold break from those old notions and some of whom go to extremes in the opposite direction. I should be much pleased if some competent writer, who has had practical experience, (we have had theory enough) would take up the subject of pruning and give its philosophy (not the way to prune) but the WHY of pruning, done up in the light of physiology and anatomy. Take notice, that if it is proven to be necessary for one tree in a healthy state, I shall consider the argument good for all trees in a like condition, as the subject of surgery in cases of accident and disease is of another nature, and will be good enough to come in as a second consideration.

G. W. Chapman.

Williamsburg, Kansas.

My Theory.

My friend Phillips, who objects to my theory, which attributes the partial destruction of the apple crop of this year, to the intense heat and cold of April, 1870, through a great part of the Mississippi Valley, has failed to meet the question entirely. If he will give the degrees of the mercury from the 10th to 16th of April, 1870, including every day, as I have done, he will then see whether my theory is right or wrong, or at least, will have better clue to its proper appreciation.

Cor. Ed.

Pear on the Mountain Ash.

Ed. Pomologist and Gardener:—I would like o enquire of those who have had experience, if it is in any way advantageous or desirable to graft or bud the pear upon Mountain Ash stock? I see that some nurserymen are propagating in that way. Are they not really of much less value than when propagated upon pear stock? To what age does the Mountain Ash live, compared with the pear? Which is the longer-lived tree, the American or European Mountain Ash?

H. C. R.

Council Bluffs.

The Pear and Hale's Early Peach South.—The Ga. *Farmer & Gardener* says:—After receiving all the information we have obtained either from years of personal observation or from reports of reliable fruit growers, we have come to the following conclusions:

1st. That pear culture is more successful on the sea coast belt (not more than twenty miles inland) and in the vicinity of the great Northern Lakes, than further inland. The influence of the sea and lake breezes seems to have a marked effect upon the vigor as well as continued fertility of the trees. In this belt *pear blight* is scarcely known. Furthermore, we are convinced beyond cavil, that pear trees are more fruitful and healthy in clay soils than

in those of lighter texture. In every orchard which has come under our notice, we invariably found pear trees thrive best in the most compact clayey parts, providing the land was well drained and well prepared.

2d. That Hale's Early peach is not suited to the *sea coast belt.* We have before us most conclusive proofs of what we advance, and our advice would be *not to plant* this variety where the influence of sea breezes is felt.

Concord & Clinton — Hardiness. — A correspondent of the Country Gentleman thinks hardy grapes do best unprotected in winter. He secures his vines on the trellis in the fall as wished for the following season's growth, and prunes in fall or spring as best suits his convenience. Says his Concord and Clinton have defied 25 degrees below zero, and changes of 40 degrees in twelve hours. In laying down tender vines for the winter he never bends the vine one side or the other, but puts it down in the form of a bow.

Choice Peaches.—F. R. Elliott says, in the Cleveland Herald, that he is pleased to record that among all the scores of new seedling peaches, exhibited at the various Fairs he has attended this autumn, not one has come up to the standard of Crawford's Late Free or Tippecanoe Cling, so that peach growers need not delay in making selections for planting, from fear of there being some new sort of superior size and merit.

Wintering Apples.—It should be understood that apples decay more from being kept too close and warm in winter than all other causes put together. Apples should be kept in a cellar where the air circulates freely and the temperature just below the freezing point. In fact to be kept in the best possible condition they should be stored in a cellar too cool for keeping potatoes in. Apples should be kept from contact with the walls of the cellar, but near the middle, up from the bottom, as near the ceiling as possible where there is a better circulation of air.

The Bartlett and Seckel.—At the meeting of the American Pomological Society in 1848 a select list of pears was recommended for cultivation. In its preparation the Bartlett and Seckel were the only sorts unanimously agreed upon for general cultivation. The Bartlett still maintains its prestige of twenty years ago among pears, for at the late meeting of the Society it was re-indorsed without a dissenting voice.

Great Beet Crop. — Near Castroville, Cal., from nine acres of seeding four hundred tons of sugar beets have been gathered and used for feeding hogs, with about fifty tons more to gather.

Skinner's Seedling Apple.—Where can I get a few cions of the Skinner (Cal.) Seedling Apple spoken of in a late number of the *Pomologist*? If some brother horticulturist in California, will send me a few cions, I will endeavor to reciprocate such favor. I am not a nurseryman. I grow trees only for my own orchard and not all of those.

P. M. Gideon.

Excelsior, Minn.

Common Sense Pruning.—At a meeting of the Keene, (N. H.) Farmers' Club, the subject of pruning was discussed. One member said his practice had been to trim trees from time to time as they were growing, taking off the young shoots not wanted to form a good top. Another member said, —"the best time to prune a tree is when it needs it." That's it exactly—prune a tree just when it needs it, and then only.

Clipping Strawberry Plants.—A correspondent of "Our Home Journal" tried the experiment of clipping the leaves from a portion of his plants. The result was a total loss of the plants, while adjoining rows let alone made fine growth. Thinks it taught him a good lesson, though it cost him something in learning it.

The "Lady" Crab.—D. W. Adams, Waukon, has favored us with specimens of the "Lady" crab apple. It is a very handsome fruit, round, and a deep rich red. Mr. A. does not claim it as anything new—says "it is an old fruit about which no fuss has been made." We think it quite as good if not better than some other crabs, concerning which, a very *great* "fuss" is being made.

A New Oregon Pear.—The Willamette *Farmer* says that R. C. Geer has a seedling pear that took the premium over all others at the Fair. It resembles the Winter Nellis in flavor, and ripens about the first of October, at a time when no other pear is in its prime. The *Farmer* expects to see the time when Geer's Seedling will be one of the favorite pears of the country.

Culture of Blackberries.—A prominent grower of small fruits in New Jersey, says: "After carefully cultivating and testing twenty-six different varieties, in addition to a large number of seedlings which were no better than parent stock, I have retained four, which are all valuable as field crops for market. They are Wilson's Early, the Dorchester, the Kittatinny and the New Rochelle.

Wintering Apples.—An Ohio orchardist uses bushel boxes made square for storing his apples. The advantage of such boxes over barrels or large boxes are: The boxes are easily handled, will pack in the cellar without any waste space.

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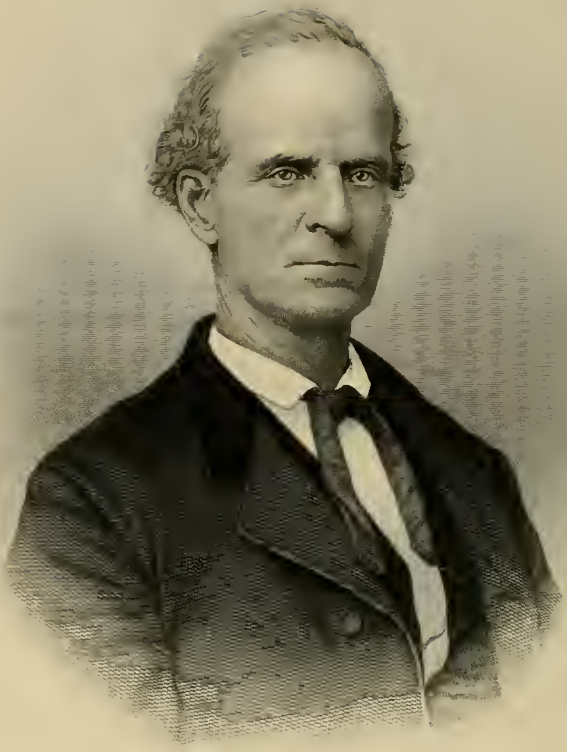


Very Respectfully
J. S. Downer.

THE POMOLOGIST

VOL. III. Des Moines; Leavenworth, Jan. 15, 1872. No. 1

MARK MILLER, Managing Editor and Publisher, Des Moines, Iowa.

Dr. J. Stayman, Associate Editor, Leavenworth, Kansas.
Dr. Wm. M. Howsley, Corresponding Editor, Leavenworth, Kansas.
Dr. S. H. Kridelbaugh, Entomological Editor, Clarinda, Iowa.

J. S. DOWNER.

The subject of our engraving was born on the 19th of June, 1809, in Woodville, Culpepper county, Virginia, of parents reaching far back in their lineage on both sides, into the Colonial history of the State. His ancestry, some of them, bore an earnest and a conspicuous part amid all the trying experiences of the Revolution. While he was yet an infant his parents removed from Virginia to Christian county, Kentucky, *then* considered on the verge of civilization. Here—with no instructor or guide in Horticulture or Pomology—love for this noble pursuit dawned in his nature. While yet a boy, as he traversed the forest in scarch of some truant animal, or followed the winding and often dim path leading away to some distant mill, he sought out and learned to know the starry flowers gemming the greensward, and made familiar acquaintance with shrub and tree hedging the vales and streams. These peculiarities develope in his boyhood great energy, earnest industry, an ardent love for Floriculture and Horticulture in all its various brauches, and intense admiration for the dignity of *this*, his chosen *life work*.

Within a few miles of where his parents settled he began in earliest manhood his present nursery establishment, now so widely known as Forest Nursery, and has persevered against every opposition, until he has made it one of the leading establishments of the nation. From the obscure youth, without fame or fortune, he has developed into a Nurseryman, Pomologist and Horticulturist of a national reputation. He has secured and tested in his own nurseries and orchards, specimens of most of the varieties known or cultivated, North, South, East, or West—often securing them at immense cost and toil; never sparing effort or expense to test and develope each in its genuine excellence, or native deficiencies.

He has achieved much of his present reputation by this characteristic, upheld by a native honesty of purpose, remarkable and "*Sui Generis*." He *never* endorses *anything* without knowledge drawn from his own experience, nor condems without observation of failure. His rare honesty of character and justice in dealing is as widely known as his name; and has secured him an enviable reputation with classes, especially among the leading Horticulturists and Pomologists of the age.

Mr. Downer is a man of rare mental endowments. He has procured one of the finest libraries in the country on Horticulture and Pomology, and has studied and appropriated all its value. He has long since become accustomed to wield the pen of "the ready writer." In speech he is modest and retiring, but ever clear, forcible and plain. He has labored earnestly in behalf of Pomology in Kentucky, and has in fact done more to elevate and ennoble his business than any other man in the middle or southern States. He yet lives, though advancing into a "green old age," upon the grounds he first settled near

development of the luscious fruit. But what is light? Is it simply an excessively rare, subtle and elastic ether, or something that illuminates this ether, which fills all space and pervades all material bodies, occupying the intervals between their molicules?

The theory is, that the molecules of the ether are susceptible of being set in motion by the agitation of the particles of ponderable matter; and that when any one is thus set in motion it communicates a similar motion to those adjacent to it, and thus the motion is propagated farther and farther in all directions by mechanical laws as other elastic media, as air and water, thus propagating its vibrations in certain degrees corresponding to the degree of elasticity. Motion is all that is wanted to develop cell after cell, which works on the crude juices like leaven, expanding, refining and eliminating to the perfection of the fruit; this stimulus resides in the light and properties of the plant, and is one of the Creator's chief agencies, that is, those powers which are the manipulators of all condition of substances, or, in other words, permeating the formating of the Creator; they take their places, in a regular order of gradation in the scale of progressing attainments, and display simply higher powers of digestive elimination.

I shall not discuss Newton nor Dr. Young's theories about light, it is enough to know that with light is associate color, while a beam of light may not only impart its stimulus to the perfection and ripening of the fruit, it also imparts color, variously modified as the rays are differently affected in passing through refracting and absorbing media, a property inherent in the light itself. It is true we find in the operation of nature certain elements which science calls oxygen, hydrogen, nitrogen, carbon, etc. These absorbed, digested and elaborated in the vegetable tissue yield substances we call gum, sugar, farina or starch, gluten, albumen, fibrine, extract, coloring matter, tannin, bitter and alkaline principles, acids, oils, wax, resins, camphor, spices, perfumes, caoutchouc, cork, woody fibre, charcoal, together with the sap and proper juices, ashes, alkalies, earth, etc., often mingled and combined. How all these wonders are brought about, we can never know, so as to enable us to produce them; some, indeed, chemistry can imitate and re-combine, and separate the compounds, but the vital principles once destroyed effectually, cannot be restored to re-animate dead matter by man's wisdom. We must remember we are finite and never can comprehend infinity.

Who can understand the wonderful works of God to perfection? We may exclaim with the Psalmist, "Such knowledge is too wonderful for me! it is high, I cannot attain unto it."

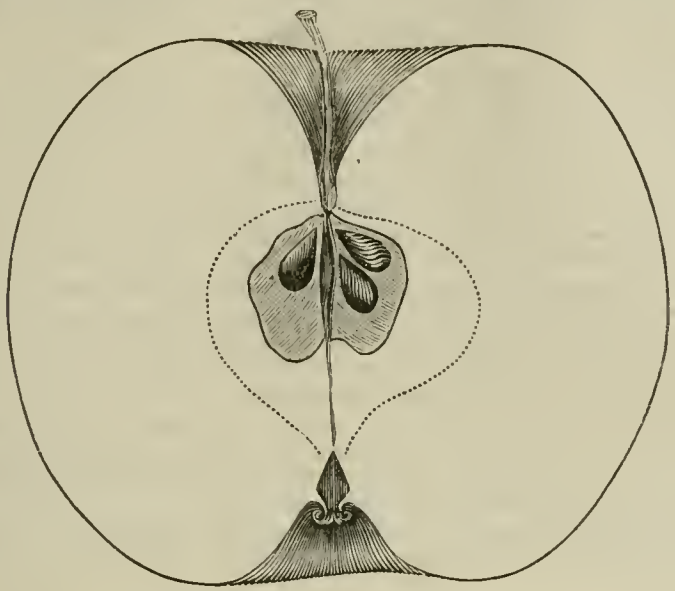
The Cherry Crop Next Year--Will the "Doctor" Rise to Explain?

By H. A. Terry, Crescent City.

Ed. Pomologist and Gardener:—Meeting my friend Raymond the other day, he very emphatically and positively informed me that the fruit buds on the cherry trees were all killed or nearly so. On going home I made very thorough examination of our trees and find the average about as follows:—Early Richmond, three buds in five killed; Belle Magnifique, one bud in five killed; English Morrello, two buds in five killed; Purple Morello, three buds in five killed; Late Richmond or Kentish so far as examined, all sound. So it seems from this that we are to have only a half crop of cherries next year, but I will be well satisfied if two-fifths of the buds on my E. Richmond trees shall have a full crop, all that the trees will be able to sustain. My other varieties are are not so full of buds.

I had always supposed that English Morello was the hardiest in fruit bud of any cherry in cultivation, but it seems that Belle Magnifique, a variety that is frequently much injured in the wood by our hard winters, is almost free from injury in fruit bud in this case. The Late Richmond in this case is all right, and from my experience now and heretofore, I feel disposed to recommend it for general planting. The Purple Morello, which is only a step in advance of our common Morello, is in the present instance as badly injured as any. I should like to have some of the "Doctors" in horticulture rise and explain this killing business, as we have had no unusual weather of either heat or cold. It is true the month of December has been unusually cold, but it has been steady cold, without any

extremes, the mercury in no case falling more than fourteen degrees below zero. I have known cherry buds to survive twenty-eight below zero. Will the fruit growers around Des Moines and elsewhere in the State report on the prospect for cherries in 1872.



Caldwalder's Golden Apple.

By The Associate Editor.

Fruit average; weight 8 to 10 ounces; form round, compressed, oblique, truncated; skin bright golden yellow, with a faint blush; dots elevated, scattered, conspicuous, medium, irregular, dark brown; stem medium to long, slender; cavity wide, abrupt, deep, russeted eye medium, open; basin wide, abrupt, deep, slightly furrowed; core medium, slightly open; carpels rather large; seeds small, ovate, dark brown; flesh yellowish white, tender, juicy, mild pleasant acid; quality quite good; use market, kitchen; season November to March.

This apple originated on the farm of James Simmons, near Greenhush, Warren, Illinois, a few years ago. We are well acquainted with the locality of this place, having lived in the neighborhood many years. Any apple which will succeed well in that locality may be considered hardy. It is a very handsome, attractive apple, strong open grower, a very early and abundant bearer, and said to be free from blight. It strikes root very freely from the scions as the graft.

Mr. James Simmons has planted out from sprouts coming up around the seedling tree, until he has now about four hundred trees of this variety in bearing. He says of it: "I have apples when my neighbors have any, and sometimes I have when they have none. They come to my orchard to get apples to dry when they have apples in their own orchard. I use this fruit for sauce, and pies for harvest. I have them for my fall fruit, and I put them away for winter."

We find since writing the above description, that the apples improve much in quality later in the season, by samples just received, and also become richer in color, and more attractive.

The Cherry.---The Mahaleb, Mazard and Morello for Stocks.

By B. A. Mathews, Knoxville, Iowa.

Ed. Pomologist and Gardener:—I have had a good deal of experience with Mahaleb and Mazard stocks. Have some May Duke trees seventeen years old on Mazard as heal-

thy and productive as any trees in Iowa. Have one English Morello on Mahaleb about the same age. This cherry does much better on the Mahaleb than on any other stock. I have a cherry orchard of about one hundred and fifty trees just coming into bearing—about one hundred of them Early Richmond, one half worked on Morello, the other half on Mahaleb, a few on Mazard. From my experience with this cherry (Early Richmond), I should say that in *this* locality it will give better satisfaction the "long run" on Mahaleb than on Morello. Can find plenty of trees that we set out years ago, and that have been bearing for the last ten years, and giving such satisfaction that when the farmers come to buy cherry trees in the spring, they generally ask for "the kind that don't sprout."

I have not had as much experience with the Richmond on the Mazard as on Mahaleb though we have them on the former stock in bearing, and they promise to do as well as any we have. For nursery purposes, however, I shall use the Mahaleb, as I *know* this is all right in *this* section. My father knows of one tree (Richmond) on the College Farm on Mahaleb, about twelve years old, that produces well. The Mazard and Mahaleb both grow very late in the fall, and frequently the tops will kill. They should be banked up the same as one year old apple grafts. We bud in the fall, then bank up, examine in spring and if any buds have not taken, graft the stock at the ground. In all cases bud or graft as close to the ground as practicable, and when transplanted, the trees should be planted so deep that the stock will be some inches under ground.

I have the Gov. Wood and some other varieties of the better, but tenderer varieties of cherries in bearing in my orchard. I *think* I have hit upon a plan of raising some of these fine varieties without any trouble, but will wait a few years longer, and if I am successful will let the trees and fruit speak for themselves.

P. S. I have been experimenting for three years with the White thorn as a pear stock and will tell you what I have learned about it at another time.

The Pear and its Culture--In three numbers.--No. 1.

By The Corresponding Editor.

The pear, as a fruit for luxury or for commercial purposes, has not been, until recently, cultivated to any considerable extent. Although known and described many long centuries since, yet it is comparatively a fruit of recent introduction.

Since the revolution brought about, principally in France, by working the Pear on the Quince stock, thereby rendering the tree of dwarf habit, it has come to be a fruit almost universally sought after and planted. The Pear, among all of the large tree-fruits of temperate climates, is certainly the most luscious, not even excepting the finest Peach. There are very few palates, indeed, that do not relish with greatest pleasure the flavor of a well-ripened Pear, especially such as the Seckle, the Bartlett, or the White Doyenne. These, to say nothing of other varieties, when well ripened in the fruit room, are universally acknowledged to have the highest perfection of flavor.

As an article of commerce, they command the highest prices in the market of any other fruit in their season, and to those who have turned their attention to the cultivation of this fruit especially, they have yielded a rich revenue. All that is now necessary to make them almost universally sought after and planted, is to understand properly the cultivation of the trees, and the proper care and management of the fruit. To these last two points we propose to devote the remaining pages of this paper.

Cultivation of the trees. The Pear tree is one of long life, of very large size, and of abundant bearing in its native country and natural condition. When and wherever it shall fail in either of the above conditions, such failure must result from some one or more of the following causes:

First.—From uncongeniality of soil.

Second.—From fickleness of the climate.

Third.—From want of adaptation between the cion and the stock.

Fourth.—From injudicious and unscientific modes of cultivation in both soil and tree. First, then, of

Uncongeniality of soil. Almost every species, and indeed, every variety of the tree family, requires a peculiar kind of soil to suit its peculiar requirements. The Pear, although adapting itself to a great variety of situations, is nevertheless sometimes planted in soils where it cannot thrive. The almost perpendicular descent of its roots would seem to indicate a soil easily penetrated if it would grow thrifty. A soil, therefore, well supplied with sand, is best suited to its growth. If this soil is well mixed with gravel, so much the better. These indications are such as would give a moderate, yet healthy growth, the very kind of growth that the pear tree requires. Facts are abundant in confirmation of these opinions, three of which are in point—New Jersey, Long Island and California. At all of these places pear culture is eminently successful, owing principally in the two former to the abundance of sand in their soils. In such lands as these, thorough cultivation is necessary to make the fruit fine, while in lands of a rich, loamy character, such a cultivation would result in the death of many of the trees from *blight*, probably; hence, in planting pear trees upon the pear-root lands of the above kind, light, but not very rich, should be selected. Pear trees grown on the Quince, however, require a different kind of soil—one abounding more in clay than sand. What are usually termed white oak lands, are well adapted to the growth of the Quince, especially in the West. The Pear, worked on the Quince, and in lands where clay abounds, having the junction of the Pear with the Quince, some two inches below the surface, will bear early, produce fine fruit, and ultimately make fine, large trees—by the Pear rooting at the surface.

Soils that are deep and rich with vegetable mold, such as are found in river bottoms and rich prairies, are wholly unsuited to successful pear culture—causing the trees to make a too rapid and unhealthy growth. Trees planted on such lands are very apt to die prematurely, bringing loss and disappointment to the planter.

Climate. Where the climate is uniform—as in California—pear culture is uniformly successful, especially where the soil is adapted to the healthy growth of the tree, whether upon its own roots or upon the Quince; but, in climates subject to sudden and extreme changes of temperature, success is much less certain. In climates where these sudden and extreme changes frequently occur, we will find it absolutely neceesary to put in requisition all the appliances of a judicious selection of the soil and scientific manipulation of the tree. These changes, and these mainly, are the difficulties that lie in the way to successful pear culture between latitude 36° and 41° north, and between the Rocky Mountains and the Mississippi; but when these changes are not common, or if common, not severe, then may we reasonably hope for abundant crops of pears.

The Pear on the Mountain Ash.---The European and American Stocks.

By Robert Douglass, Waukegan, Ill.

Ed. Pomologist and Gardener:—H. C. R., Council Bluffs, page 323, December number Pomologist and Gardener, asks for information regarding Pear on Mountain Ash roots- He also puts the following very pertinent questions:

"Are they not really of much less value than when propagated upon Pear stock?"

"To what age does the Mountain Ash live, compared with the Pear?"

"Which is the longer lived tree, the American or European Mountain Ash?"

The Pear Tree in suitable soil and climate lives to a great age. The Mountain Ash is generally considered to be a tree that grows very fast when young, soon comes to maturity, and as a consequence, soon dies. It is so well known that the pear tree, *when in a suitable soil and climate*, will stand for centuries; we are probably all agreed on that point. It is not so easy to ascertain to what age the American and European Mountain Ash attain, *when in a suitable soil and climate.* I have no data by which we can approximate to the age of the American Mountain Ash, therefore cannot answer the question, whether the American or European Mountain Ash is the longest lived tree.

Grigor, in speaking of the European Mountain Ash (*Pyrus Aucuparia*), says: "Some

of the finest trees in the North are produced in Badenoch, Inverness-shire. The best of these and perhaps the finest tree of the species in Britain, stands at the west entrance gate on the estate of Belleville. It is fully forty feet high, with a very large, well balanced head, and a handsome trunk, from eight to nine feet in circumference. The tree is indigenous to the estate, but very likely it had been placed in its present situation by McPherson, celebrated for his translation of the "Osian," and other Gælic poems, who purchased and improved the estate towards the end of the last century. The tree affects a cool soil and a moist atmosphere. It attains to the age of many centuries, and in open situations it is seldom attacked by disease."

I have quoted the above from John Grigor, simply to answer H. C. R.'s questions, as far as lies in my power, and not that I consider it has much bearing on the question of the value of the Pear on Mountain Ash stock. The most important questions are, First: Is the Mountain Ash stock hardy? Second: Will the Pear cion form a perfect union with the Mountain Ash? Third: Will the Pear Tree on Mountain Ash root remain in a healthy condition, and produce fruit? I will answer these questions by giving my experience, leaving H. C. R. and your readers to judge for themselves whether there is anything gained by working the Pear on Mountain Ash.

In the autumn of 1848, I purchased a lot of pear trees of F. R. Elliott, of Cleveland, Ohio, then a nurseryman at that place. He is well known to western horticulturists, as the author of Elliott's Fruit Book, and also as the Secretary of the National Pomological Association. Having kept watch of a few of these trees, and noticing that they grew and fruited as well as any I had, either on Pear or Quince stock, and learning from sad experience that the Quince root is not adapted to the West, and will frequently be found dead in the spring, when the Pear tree above ground is uninjured, I tried for several years to call attention to it as being a better stock than the Quince. I wrote to F. R. Elliott, in 1867, asking him if he had kept watch of the trees from the same block mine were taken. He replied that some trees taken from the same lot of budding from which mine were taken, have continued to fruit steadily and are now healthy.

Robert Hassel, of Alderly, Wisconsin, wrote me that he has trees on Pear stock, also on American Mountain Ash stock, var. Flemish Beauty, and that those on Mountain Ash are the healthiest, and fruit best. He also says that the American Mountain Ash is a better stock than the European. With this evidence before me, I thought the stock in question deserved testing, and called attention to it in our catalogue, stating that we had "experience with it, and are convinced that it is a far better stock than the Quince for western soils, being perfectly hardy;" also that "we offer them by the hundred to those *desirous of testing them.*" I am aware of the great responsibility resting on persons who recommend new things in the way of horticulture, and have waited many years hoping that this might be tested by other parties, before bringing it to public notice. Indeed I have sent packages of Mountain Ash seedlings to several friends a few years since, requesting them to make this test, finally coming to the conclusion that this important matter would not be thoroughly tested till the trees were.

Failure of Fruit Blossoms--My Theory.

By A. L. Hatch, Ithaca, Wis.

Ed. Pomologist and Gardener:—In the October number of the Pomologist, there is an article by Mr. Ira Phillips, and also one by Mr. Wm. P. Lippincot, concerning the loss of fruit blossoms by frost. I have a theory concerning it which I will, with your permission, present to your readers.

From April to the middle of July in 1870, this section of country experienced a severe drowth, unprecedented in commencing so early in the season and enduring so long. Apple trees suffered severely, especially those heavily cropped. After the middle of July we had plentiful and refreshing showers, and trees put on a good growth which matured well as we luckily had a favorable autumn.

POMOLOGIST AND GARDENER---1872.

IT will be seen that in starting out with the new volume we have adopted the same style of page as our cotemporaries, the *Horticulturist* and the *American Journal of Horticulture*. Dispensing with the use of column and dash rules economizes space for actual reading matter. This change in style of page permits of a slight reduction in size, thereby saving fifty per cent in cost of presswork, without any material abridgment in amount of reading matter. With this slight change the press upon which our work is done will take on a form of sixteen pages, instead of a much less number as heretofore. It should also be observed that publication day is the fifteenth of the month instead of the first.

ADVERTISEMENTS.

We are gratified to know, as our columns fully attest, that the POMOLOGIST AND GARDENER is being duly appreciated as an advertising medium. On the relative value of daily, weekly and monthly papers for advertising, Geo. P. Rowell & Co., one of the oldest and most popular advertising agencies in the United States, say:

The less frequently a publication is issued, the more thoroughly it is likely to be read. A daily paper is glanced at or kept before its reader for an hour or two, and when a day old is generally considered valueless. A weekly paper is kept about the house much longer, is more generally read by all the members of the family, is more reliable and much more generally preserved as a record of passing events, or for the stories, etc., which it contains.

Monthlies are generally printed in the form of books, and are more valued on that account. A monthly is rarely torn or thrown away, while a considerable proportion of their subscribers preserve and bind, making for them a place in the library, where they are often kept for years.

BY THE ENTOMOLOGICAL EDITOR.

The American Lackey moth is the parent of the common American Tent-caterpillar, (*clisiocampa Americana.*) During the last days of June and the first days of July, this moth deposits her eggs on the small twigs of the trees in the manner represented at C. in oblong bands containing an average of about two hundred and fifty eggs to the band, or ring. After the laying of the eggs has been completed they are, by the parent, securely covered over with a brown varnish, in which condition they remain securely protected during the remainder of the summer, fall and winter. The warm days of autumn, no matter how long they may continue, do not affect them, the cold of winter alike leaves them unharmed. Each individual egg is similar in shape to the hen's egg, though very minute, being only about one-twentieth of an inch in lengh. In these minute eggs the young caterpillars lay bent double, the middle of the caterpillar being at the small end of the egg.

The genial warm days of spring which brings frondescense to the apple tree hatches these eggs, and the young caterpillars are born in the midst of an abundance of food. Sometimes, as was the case in 1870, on account of a late spring freeze, the young leaves are seared by frost, and for a time their rations are cut off; against this emergency they, however, appear to be by nature fortified, as they are capable of enduring much cold and live a long time without food—as long as ten or twelve days.

As soon as hatched, the *C. Americana Larvæ* commence constructing for themselves a silken home. This they do at the fork of limbs, the angle of which, to some extent pat-

the healthiest, and [illegible]
stock than the European. With this evidence [illegible]
deserved testing, and called attention to it in our catalogue, stating that we had [illegible]
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Ed. Pomologist and Gardener:—In the October number of the Pomologist, there is an article by Mr. Ira Phillips, and also one by Mr. Wm. P. Lippincot, concerning the loss of fruit blossoms by frost. I have a theory concerning it which I will, with your permission, present to your readers.

From April to the middle of July in 1870, this section of country experienced a severe drowth, unprecedented in commencing so early in the season and enduring so long. Apple trees suffered severely, especially those heavily cropped. After the middle of July we had plentiful and refreshing showers, and trees put on a good growth which matured well as we luckily had a favorable autumn.

Our ridge lands, elevated 250 to 300 feet above our valleys, are freer from frosts than our vallies—the freezes being always less severe in spring or fall, and the valleys often have frosts when the ridges do not. Last spring we had a hard frost after apple trees were in bloom, and to this was attributed the loss of much of the bloom. However, I have found trees in the vallies bearing often very handsomely, and many trees on the ridge lands entirely barren of fruit. Now had the frost been the sole cause of the loss of bloom it would have invariably been in favor of the ridge lands.

This is my explanation: Trees that suffered with the drouth of 1870, and especially those that bore heavily then, did not perfect their blossom buds as they should have been, and on expanding last spring they had not sufficient vitality to carry them through the frost. And I found this view confirmed in trees on all sites, for I found, this last summer, many trees on the frostiest sights bearing good crops, and as a rule trees that did not suffer with the drouth in 1870 carried their bloom through last spring's frost. Some trees carried their bloom through the frost and the apples attained one-half to one inch in diameter and then fell off, showing a lack of vitality in the tree.

During the drouth trees not protected by mulching, or those on very dry sites often presented a withered appearance. The leaves on such trees could not and did not mature the buds at the base of each leaf, stalk and a sparse foliage was the result for last summer. The leaves that grew after the middle of July, 1870, perfected their buds better, and a curious feature of last summer's growth was the more vigorous expansion of those buds and a good growth on the extremities of the previous year's growths, and a feebler growth on the base of the limbs.

My conclusion is, that those trees that perfect their buds best, those that suffer less from drouth or over cropping, will often carry their bloom through quite severe freezes.

Some trees are tender from a tendency to late growth that does not mature before winter sets in. This may be the case with the Hubbarston Nonsuch, spoken of by Mr. Lippincot. If so it is probable that a favorable fall allowed his tree to mature well in 1854, hence the blossoms were strong and vigorous in 1855. The Fameuse always has a full foliage of bright green leaves and seldom loses its bloom if the previous fall is favorable to a full maturity of its leaves. I think it hardly probable that tender trees are more apt to have hardy blossoms than hardy trees, except as above stated.

American Tent Caterpillar---*Clisiacompa Americana*---*Harris.*

By the Entomological Editor.

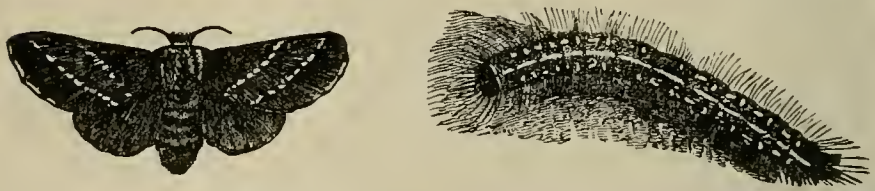
The American Lackey moth is the parent of the common American Tent-caterpillar, (*clisiocampa Americana.*) During the last days of June and the first days of July, this moth deposits her eggs on the small twigs of the trees in the manner represented at C. in oblong bands containing an average of about two hundred and fifty eggs to the band, or ring. After the laying of the eggs has been completed they are, by the parent, securely covered over with a brown varnish, in which condition they remain securely protected during the remainder of the summer, fall and winter. The warm days of autumn, no matter how long they may continue, do not affect them, the cold of winter alike leaves them unharmed. Each individual egg is similar in shape to the hen's egg, though very minute, being only about one-twentieth of an inch in lengh. In these minute eggs the young caterpillars lay bent double, the middle of the caterpillar being at the small end of the egg.

The genial warm days of spring which brings frondescense to the apple tree hatches these eggs, and the young caterpillars are born in the midst of an abundance of food. Sometimes, as was the case in 1870, on account of a late spring freeze, the young leaves are seared by frost, and for a time their rations are cut off; against this emergency they, however, appear to be by nature fortified, as they are capable of enduring much cold and live a long time without food—as long as ten or twelve days.

As soon as hatched, the *C. Americana Larvæ* commence constructing for themselves a silken home. This they do at the fork of limbs, the angle of which, to some extent pat-

terns for them its shape, 'though the tents all much resemble each other in their general appearance. At first these tents are small, but as the *larvæ* increase in size the tents grow larger and more conspicuous, until the *larvæ* has attained its full size, at which time the tents or nests consist of several layers, with spaces left between each of the layers to admit of the caterpillars passing between them. At the angles of the nests which occur simultaneously with the limbs of the tree, openings or doors are left in the nest from which, on

A B



the upper sides of the limbs are webbed roads made wherever the caterpillars may have traveled out in search for food. Their houses are not only constructed of silk, but their roads are carpeted. When very young these carpeted roads on the limits are not so readily noticed, but gradually, from day to day they increase, as the caterpillar spins a thread wherever it travels. The nests when completed are from eight to ten inches in diameter.

Although only about one tenth of an inch in length when hatched, the *larvæ* of this tent-catapillar in the course of five or six weeks grows to be about one inch and three-quar-

C D

ters long. During this period, which is the active and damaging period of its existence, it voraciously feeds upon the leaves of the apple, plum, cherry, tame and wild, the thorn, and occasionally on the pear, the peach and the rose, the latter very rarely, however. During this time it sheds four skins. Contrary to the ideas of many they are not blind, but can see. Their eyes are very small, consisting of ten minute black spots, five on each side of the head. This *larvæ* is hairy, color black, white, blue and rufous, a good representation is here with given at B a sideview, and A back view.

When full grown the *larvæ* of the tent caterpillar partially ceases to be gregrarious—to live congregated in one large family ; and each individual then hunts out for itself a desirable place, such as the corner by the side of a fence post where the board is attached, a crevice, or some such convenient location wherein it may fasten its cocoon on two sides. Having found the desired place for this work, it attaches its hind feet and commences the making of the silken house wherein it passes into the chryalis state. At the commencement of the making of the coccon the the texture is light and open, but as it grows nearer finished the texture gets closer, until it resembles fine cloth. In this condition the insect can yet be seen, but on account of the exudation of a yellow substance from the *larvæ* the inner surface of the cocoon is covered and the insect is completely hidden from sight. At D.

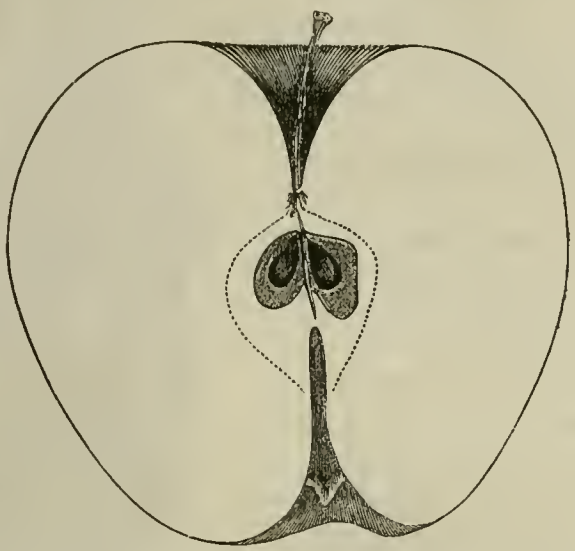
is a representation of the cocoon made by the *C. Americana*, which is of a yellow color.

After remaining in the *chrysalis* state about twenty days, which brings the season along to the last days of July, in each year, the *C. Americana* comes out, and is known as the American Lackey moth, which, when fully developed, is about one inch and a half from tip to tip of the wings. It is of a pale brick-red color, with two oblique whitish lines across the fore wings; occasionally, however individuals are seen a shade darker, of an ashy-brown color. This moth eats nothing during its existence, which is only three or four

days. It is void of the hollow tongue or sucker. It appears to only have an existence to provide for the continuation of its species, and for no other purpose. The *antennæ* of the female is only slightly feather-like pennate, while that of the male is considerably more so.

This insect has parasite enemies, but as it is easily destroyed by the picking of the egg bands during the winter season, and the killing of the young *larvæ* while congregated in their tents in the spring, it should never do a serious amount of damage. If, however, it is left to take its natural course it will prove ruinous to the orchards of the whole country. Only one generation a year of this insect is produced.

Next month we will speak of the *Clislocampa Sylvatica*, the Tent caterpillar of the Forest, then of the Fall Web Worm, *Hyphaetria textor*, as these two insects are so commonly thought to be the same as the American Tent caterpillar, *C. Americana*, and only different broods of the same insect.



Wild Native Crab of Missouri.

BY THE ASSOCIATE EDITOR

Fruit very large for a crab; weight 4 to 5 ounces; form, oblong conic, slightly flattened at the base; skin nearly orange yellow; dots very numerous, small, dark grey; stem long and slender; cavity rather wide and deep, russeted; eye small, slightly open; basin shallow, abrupt, narrow, folded and ribbed; core small, compact, oblong; carpels small, seeds ovate, dark, nearly black and rather long; flesh yellow, juicy, high quince flavor, astringent, mild, pleasant ascid good for a crab, excellent for cider, preserves and jellies. Season, September and through the winter; very fragrant; found on Lucy Patterson's farm near St. Louis, and presented to us by Mr. M. Smith of Florisant, Mo. The tree bore this season about ten bushels of apples. It so surpasses all the wild crabs in size, quality, and beauty that we think it worthy general cultivation, particularly when crab apples are attracting so much attention.

Adaptability of Vineyard Grounds.

A California correspondent of the Overland Monthly for December, says: "The best results have followed the experiments, by individual producers, to make from a single vineyard and one species of grapes, all the known kinds of wine. This benefit came in a negative manner, and demonstrated conclusively the non-adaptability of particular vineyards, and even whole districts, to produce certain classes of wines. Each district is gradually confining itself to its own proper character of wine, and a few years hence it will be known to a certainty which district is best adapted to producing a certain class of wine, and that class will be the only one produced there. Thus are our vinters, step by step, emerging from the chaos of inexperience, and acquiring additional knowledge."

A New California Pine.

We have been favored with a photograph of new species of pine which was originated by Mr. W. H. Pepper, near Petaluma, some four years since, but which is now for the first time introduced to the public. The annexed engraving is a faithful representation of the first tree produced as it may now be seen, forming a dense, compact and dark green column. The leaves are from one to three inches long, in whorls from six to seven inches apart. The original plant, which has had every advantage to grow well, is now only four feet high. If people *will* plant pines in their gardens, this certainly promises to be a most desirable variety, on account of its dwarf habits and very dark green foliage, which forms a marked contrast with most of the other foliage in the garden.

This new variety of the pine family has been named *Symei*—Syme's Pine.—*Pacific Rural Press.*

The Galaway Peach.

The following is an extract from the report of a committee of pomologists to the State Board of Agriculture on this new peach. We publish it at this time so that those who are preparing to plant peach trees this winter may have the benefit of the information it contains. We would also state that we examined the peach ourselves at the State Fair, and fully endorse the favorable report of the committee.

"This is a large, yellow free-stone peach, imported from England in 1864, by the late Isaac Pullen, of New Jersey. Introduced into California by E. F. Aiken, of Sacramento, in 1868, fruited for the first time this year. James Alexander Fulton in his new work on peach culture, describes it as follows: 'It is a large peach of very great beauty and good quality, nearly round, with suture well defined towards the apex. Terminal point distinct. Its distinctive virtue, however, is its late ripening—several days after the one, which has, heretofore, been considered our latest free-stone peach.' Your committee believe that the description as quoted above is fully sustained in the samples exhibited, and that the time of ripening in this locality is from the 20th of September to the 20th of October. The character of the wood and foliage indicates hardiness and comparative exemption from the curl leaf. We think it is a valuable acquisition to our list of fruits and worthy the attention of fruit growers."—*Ib.*

Winter Care of Window Plants.

Window plants suffer much at this season from the high and dry temperature at which it is necessary for human comfort to keep our dwellings. Air can seldom be admitted from the lowness of the external temperature. Saucers of water under the plants do much to remedy the aridity from which room plants suffer. In such cases, however, so much water must not be given to plants as to those without saucers.—*Ex.*

Vineyard and Garden.

Growing Grape Vines on Trees--Vs Trellis or Stakes.

By J. B. Garber, Columbia, Pa.

Ed. Pomologist and Gardener:—I have often thought that if we would, or could conveniently grow, or train our grape-vines up into and through the branches of trees, our success in growing good, healthy vines and grapes would be far more encouraging than to train the vines on trellises or stakes as we are in the habit of doing. Time and again have I seen vines that had not been closely watched, had reached out an arm for support, and had taken hold of some shrub or tree in close proximity, and then in a few years the whole force of the plant would be directed to that arm. 'Tis true we would not get such large specimen bunches, but wherever I have seen the vines running on trees, the fruit was of a better quality, the vines healthier, less mildew, or other diseases, than when confined on trellis or stakes.

Some years since I had an Isabella vine trained to a frame some fifteen feet high, on the gable end of the kitchen, a brick wall and an eastern exposure. The grapes generally ripened quite well. The vine stood near the kitchen sink where *wash from the kitchen kept the roots constantly moist.* A plum tree stood off from the wall about six feet, and as I did not trim the plant very close a vine reached out and clung to the plum tree. The following season I observed this small shoot was showing fruit at every joint. In the fall I was really surprised at the superior quality of the fruit, hanging temptingly in among the branches of the plum tree. The curculio of course made use of all the plums, yet the little turk did not meddle with the grapes. Might it not be a good idea to plant plum or other small trees, and if we are not to have any plums, we might gather grapes? 'Tis true, "we may not gather figs from thistles," yet it is equally true we can gather grapes from plum trees.

Another instance of a monster Isabella vine some miles from here:—It had been trained on a trellis ten feet high, but disdaining such artificial accommodations, a branch had reached out its tendrils and taken hold of the limb of an apple tree, and all its energies appeared directed to that branch. When I saw it some six or seven years since, this branch had run over three large apple trees, standing twenty feet apart, though the tops reached together. This vine was then covering a good part of the three trees, and was reaching out its feelers to take hold of the fourth tree. It was then covering a good part of these trees with a mass of black clusters. The fruit and foliage of that part of the vine still remaining on the trellis was quite imperfect in contrast to the healthy foliage and luscious looking fruit on the trees. These elevated clusters, twenty to thirty feet high, could not easily be secured, and the consequence was, the birds hand them all to themselves.

I have a grafted vine of the Taylor variety, now some twelve or fifteen years old. It had been running through and over a wild plum tree, generally bearing a fair crop of healthy clusters. As the plum tree never perfected any fruit, and was becoming a nuisance, from

its habit of throwing up sprouts all around, I last season cut down the tree, grubbed up the sprouts, and trained the vine to a trellis twenty feet long. Here again the result was not a perfect bunch of grapes. My original vine of the N. Carolina seedling, (now extensively disseminated under the name of Mary Ann) has been growing for about forty years. After the first six or eight years, it has been left to shift for itself, without a knife touching it, except occasionally cutting away dead wood. It has now run over two plum, a paw paw, a small pear tree, and is reaching for a large persimmon tree. Since its first bearing, some thirty-five years ago, it has never failed of bearing perfect fruit every season; has stood almost uninjured, several cold winters, when Catawba, Elsinburg, and Isabella were killed to the roots, standing only ten feet from it. The grape is better and earlier than Hartford Prolific—never mildews or drops off the bunches, and will hang till frost, unless birds or humans take it off. Here, on our limestone soil, mildew is the great bother, especially when in June or July the season is moist or wet, and though most of my grapes on stakes or trellis mildew more or less, this seedling in among the branches of trees, is entirely free from that pest in all seasons. Thus my experience as an amateur grape grower for half a century, plainly and forcibly convinces me that to grow our American grapes on trees, is their true and normal condition,—that neither mildew nor rot will affect them to the extent that it does if trained on trellis or stakes, "according to rule" —that the bunches will be smaller, but the fruit of superior quality, and the only difficulty of this plan will be the greater trouble of gathering the fruit, and perhaps the greater depredation of birds. It appears as if this partial shade from the foliage of trees has some peculiar influence in warding off the deleterious consequences of a full exposure to the sun. It may be that the spores of the fungus elements of mildew may not so easily reach or attach to the leaves of the vines, or the partial shade of the trees in damp, foggy morn ings, may give the grape leaves time to dry before the sun strikes them. Be the cause what it may, the fact remains that vines on trees are far more healthy than when confined to trellis or stakes. The why or wherefore I am not well enough versed in the science of physiology to explain. Posibly our friend J. Stauffer of Lancaster, Pa.,—though he failed with his application of blood to the roots of a *Male Bermuda vine* to make it bear fruit, might be able to explain the reason why vines on trees are more healthy than on trellis? We have frequently seen statements that in Italy, they train their vines on low spreading Mulberry trees with the best success. Might it not be worth a trial in our climate? I merely throw out these hints for what they are worth—may be not worth any thing.

Removal and Sexuality of Grape Vines.

By George Haskell, Ipswich, Mass.

Ed. Pomologist and Gardener:—If Mr. Stauffer supposes the mere removal of a vine will change its sex, he must be mistaken. The facts he states about the removal of vines and their failure afterward to bear fruit, may be explained in several ways without resorting to the theory he suggests. Both he and Mr. Keise may have taken up the root of other vines near those which bore the fruit. Usually there are several wild vines with tangled branches and distant roots in a "patch," and I have often found it impossible at the season of removal, to distinguish the vine which bore the fruit I wished to save, or the root from which it sprung. I have found it necessary to mark with a string or tag the branch upon which the fruit was found at the time, and after the leaves were fallen, to follow it to the root I wished to obtain.

It is barely possible that the vines he speaks of, thus removed, were females, or pistilates having imperfect stamens, if any, and therefore failed to fruit when removed from the neighborhood of staminate vines. I have seen, however, but few pistilate vines which I thought incapable of self-fertilization, and have doubts if there are any such among our natives. But a large proportion of seedlings from native grapes will be infertile—having no germ or pistilate organs. A smaller proportion of vines will be thus barren among hybrids with the foreign vine; (as I have recently stated in an article in the *Country Gen-leman*), and I have never yet seen a seedling from the foreign grape—of which

I have raised thousands—that had such defective or infertile flowers. Every vine has its sexuality from birth, and if infertile, an inspection of the flower will reveal the cause at once—whether it be constitutional, or arises from accidental surroundings.

Prince describes our native vines as belonging to several species, some of which he states are *diœcions*. I think there is but one species in this country; though perhaps a line can be drawn that will divide the Fox and Pigeon classes into *two* species. I can find in the vines of this section, and of the West and South, no one characteristic which is not found in some varieties of all the so called species. They certainly all have infertile vines, varieties with only staminate organs, and other vines with pistilate organs fully developed and staminate imperfectly developed, (and perhaps inoperative), and still other vines in which the organs of both sexes are fully developed in the same flower. And vines with these peculiar formations will be found among the seedlings of every native variety. Mr. Stauffer, as a botanist, will see at once that no removal of a vine—no peculiar manure or treatment can change their natural forms of vegetable life.

Wine-Making at Point De Peau.

In a letter recently received from Mr. J. M. Sterling, of Monroe, he says: "We are almost through with our wine-making, for the season. When you were here, on the 23d of October, we were then picking the Delawares. On the 8th of November, we finished picking the Catawbas. We had a light frost at the 'Point,' on the 1st of November, but it did not affect the grapes in any perceptible degree, or in any way that we could appreciate it by our instruments.

The must of the several varieties of grapes named was tested, and we remarked that the sugar increased and the acid diminished in proportion as the season advanced, and the following table will exhibit the difference between the first pressing and the last.

The sugar increased as follows:

Delaware must, from	85 to 91
Ives' Seedling	79 to 82
Norton's Virginia	103
Concord	82 to 85
Catawba	82 to 86

The acidometer marked the percentage of acid in the must, as follows:

Delaware	6½ to 8
Ives' Seedling	4¼ to 4½
Norton's Virginia	12¼
Concord	5½ to 6¼
Catawba	6½ to 8

These tables show that the last pressing, or the must made from the grapes that remained longest on the vines, was in the most perfect condition to make strong wines of a high quality, and which would bear much reduction to make the thin wines equivalent to the light Rhenish wines of Germany and France.

The must was made from grapes at the rate of a little over thirteen pounds to the gallon.

The whole vintage reached 67,000 pounds of grapes, and from this we made about 5,000 gallons of wine."—*Michigan Farmer.*

The Vegetable Garden--Seeds and Culture.

By W. H. W. Hartford Co., Conn.

Ed. Pomologist and Gardener:—Herein lies the great secret of having *good* vegetables, fruits, herbs, etc., from which to cull in our gardens. If we are careful and diligent in propagation and cultivation of all our garden plants, we shall very likely succeed in producing good crops of all kinds; and in order to do this, we must study, and assist

nature; for though nature is generous and tractive, she needs judicious assistance and guiding in order to yield her best fruits adapted to the wants, as well as the luxuries of man. He who merely imperfectly prepares his soil, partially cultivates or heedlessly propagates his plants, and trusts to nature to do the rest, will be sure to fail of obtaining remarkably good crops; but to him who treats his soil and crops generously, using every care and precaution in the propagation and culture, bountiful rewards are most certain. "He becometh poor that dealeth with a slack hand; but the hand of the diligent maketh rich," is one of the sayings of the wise man, and is as applicable to the cultivation of the soil as in any other particular.

We all understand that the *propagation* of plants is the starting into life from the seed, or increasing and multiplying them by other means, such as by layers, cuttings, suckers, offsets, etc. All plants may be propagated from the seed, and some of them in no other way known to us; yet there are many that may be rapidly increased in other ways. With regard to *cultivation*, we must be governed by the nature of the plant, adapting it to the various differences and requirements of the plants cultivated; but there are some general laws governing the culture of all plants, and these must not be overlooked; neither will it answer to fulfill all the requirements of one essential while we ignore another, but all alike must be complied with. While we thoroughly prepare the soil, we should as carefully select and attend to the seed we sow; if we are negligent as to the sort, genuineness and soundness of our seed, we had as well be negligent as to the other; for of all the essentials of propagation none equal that of *good* seeds; therefore it is of the utmost importance that we should be *sure* here. How often do we read of, experience, or hear of the loss incurred by sowing or planting poor seed, or seed not true to name or kind. This is of no rare occurrence even among the best and most experienced gardeners and culturists, especially where they depend upon the market for any variety; neither can this be absolutely guarded against, as there is no means of ascertaining except by testing and experiment. For instance, we want a particular variety of early cabbage, we go to the dealer—who may be the most honorable and honest in the world, but does not grow and put up his own seed personally, and call for the particular variety, plant it, and it turns out some very different kind, perhaps an inferior, late variety; here is vexation added to loss of money, etc., in the result of the crop; so of cauliflower, carrot, and many other kinds, the varieties of which are not distinguishable to the eye, in the seed. The only *sure* remedy for this is to *grow*, *save*, and *care for* your own seed personally. This cannot be done in all instances, therefore the next best thing is to purchase of the most careful growers. Go to him and give your orders, or select personally, if possible; otherwise give very particular, full and clear order, and order from a seedsman known to yourself, or one whose reputation is of the best, and dearer to him than any pecuniary profits of his business. Always be sure to give your order *early*, so there need be no particular excuse on account of want of time or hurry in business.

ASPARAGUS.

The Germantown *Telegraph* says:—"We repeat our doubt that there is more than one kind of Asparagus. The more we hear of the cultivation of the mammoth—a size that we do not covet—the more clear does it appear that it is the result of selecting the strong single roots for planting to begin with, and then plant them in trenches six to eight inches deep, well plied with manure at the sides of the row, and as the manured spires grow, fill in the soil, etc. At least, this is one way of getting the largest we ever saw."

The Kentucky Late Strawberry.

While our markets have been well supplied with Early Strawberries, we have not given so much attention to the large late varieties as their importance would demand, consequently good strawberries become scarce before raspberries make their appearance. We were shown some very large, fine strawberries on the 19th of June, by Wm. Parry, N. J. They are called the "Kentucky," a seedling raised by J. S. Downing, of Kentucky, from Downer's Prolific, which from all we can learn will prove a valuable late variety.—*Gardener's Monthly.*

Editor's Portfolio.

Kansas State Horticultural Society--Annual Meeting.

The fifth annual meeting of the Society took place at Lawrence, Dec. 19 and 20th. The Society met at 9 o'clock A. M.

The President, Dr. Wm. M. Howsley in the Chair Prayer by Rev. Harvey Jones, of Grasshopper Falls.

The welcoming address was delivered by T. D. Thacher, Esq., of the *Republican Journal.* In behalf of the citizens of Lawrence he bade the Society welcome, and trusted that the meeting would be both pleasant and profitable. Responded to by the President for the kind and generous reception in which the Society was received by the citizens of Lawrence. The President then delivered his annual address, which was replete with valuable information, and suggestions which we hope every member will fully digest. Showing that the Horticultural Society was doing more than all other agencies in inducing immigration to the State by developing its capabilities and resources.

E. Snyder of Highland, of the *ad-interim* Committee, made an oral report of the condition of fruit trees and fruit. He stated that the apples with all other fruits ripened this season sooner than usual, but that the leaves did not drop although the wood was well matured. This appeared to be general over the whole State, but no danger was apprehended therefrom.

Mr. E. Snyder also read a very interesting essay on meteorology, showing the influence of climate, changes of temperature, and moisture on trees and plants. We cannot give too high an estimate of the value of it. For health, hardiness, productiveness and quality, depends upon soil, situation, temperature and humidity.

Mr. Murtfeldt, of St. Louis, Mo., by invitation, gave us a few remarks on what he thought of *Kansas*, he being sent here by the *Missouri Board* of *Agriculture.* He said he had traveled over a great portion of the State, and he was so favorably impressed with it that he did not know but that he might become a citizen himself from what he saw of its resources in grain and fruit. A committee was then appointed to make out a list of six of the best pears for general cultivation, Col. Lines being Chairman. He reported the following: Bartlett, Howell, Belle Lucrative Beurre Easter, White Doyenne, and Vicar of Winkfield.

Dr. Wm. M. Howsley delivered an address on fruit growing as a profitable business in Kansas. He said our geographical position was the most favorable, being placed between the valley of the Mississippi and the Rocky Mountains on the most favorable slope and elevation, having sufficient rain in the fore part of the season to unfold and fully develope our fruit, with a high temperature and dry fall, or maturing season, giving that large size, great beauty and excellence to all our fruit. Combined with this we have a virgin soil, unsurpassed in all the essential elements required for fruit growing. That we have so far escaped the devastating torrents which have swept over other States, and if the Almighty had tried his hand he could not more favored us. He also spoke of our men, their thinking habits, their untiring energy and determination. With such men, soil and climate, they must excel. He advised close planting as we described in POMOLOGIST—fifteen feet apart each way, and cut out when they interlock too much. He said horticulture was man's first business in Eden, and now, as we are entering upon the occupation for which our soil and climate are so remarkably well adapted, we are only returning back to the place where God in his infinite wisdom first placed man. Dr. Staymen, Prof. Kelsey, Mr. Murtfeldt and others participated in the discussion.

The report of the committee sent to Richmond, Virginia, was read by the chairman, Dr. Wm. M. Howsley. It was very satisfactory and encouraging in favor of Kansas fruits. A vote of thanks was unanimously given to the committee for their untiring efforts in our behalf.

Mr. R. S. Elliott, Industrial Agent of the Kansas Pacific Rail Road read a valuable paper upon our early cold weather, showing that it was an unusual occurrence in Kansas. Never before have we any record of such a cold spell. That all countries were liable to the same extremes, and even greater than what Kansas experienced by quoting almost an innumerable number of facts. This we considered one of the most interesting papers we had the pleasure of hearing.

Mr. Welcome Wells, of Manhattan, of the *ad-interim* committee, gave his report upon fruit in his part of the State. He said they had but a partial crop on account of late spring frosts. The Winesap and Cooper Early White bore well. Peaches on low ground were an entire failure. That the trees had made a good growth, and the wood was well matured, with a fine prospect of a crop next season.

The diploma neatly framed, received from the Virginia State Horticultural and Pomological Society for the best display of fruit at Richmond, was presented to the Society by Dr. Howsley, which was received with great satisfaction as the very highest compliment that could be bestowed upon our Society and the citizens of Kansas.

The report of the Treasurer, S. T. Kelsey, was presented, showing a balance of $126 in the treasury, not including the receipts of members of this year. An essay was then read by Dr. J. Stayman on the grape. The *Lawrence Republican* says: "The essay was replete with interest, and the Doctor is evidently at home on the grape question." The election of officers resulted as follows:

Dr. Wm. M. Howsley of Leavenworth, President; Hon. J. C. Vincent of Lecompton, Vice President; G. C. Brackett of Lawrence, Secretary, and S. T. Kelsey of Pomona, Treasurer. Three Trustees, Wm. Maxwell, of Edgerton; E. Snyder of Highland, and Rev. E. Gale of Manhattan, were also elected.

The Society passed a resolution to memoralize the Legislature to refund the money expended by our committee in collecting and exhibiting our fruits at Richmond, Va.—$430. An essay was then read by G. C. Brackett upon insects, beneficial and noxious, which was very interesting and valuable. The discussion on the same was very extended and of general interest to fruit growers.

REVISION OF THE FRUIT LISTS.

In the revision of the apple list it was voted to know the Red Winter Pearmain by the Red Lady Finger. It was also voted to know the Little Romanite, or Carthouse as the Gilpin.

The list as here presented and revised, after much discussion, is to be taken after this manner: One * denotes that an apple is good, and ** denotes it to be excellent. Some apples may be good for market, while they are not as good for use. The two columns represent these two qualities.

	Table or Family.	*Market.*			
Sweet June	**		Ben Davis	—	
Red Astrachan	**	**	Willow Twig	*	**
Maiden Blush	*	**	Lady Finger	*	*
Lowell	**	**	Gilpin	*	**
Fameuse	*	*	Jonathan	**	**
Rome Beauty	*	**	Kansas Keeper	*	**
Bailey Sweet			Roman Stem		
Hays' Wine	**	**	Wagner	**	**
Ortley	*	*	Summer Pearmain	**	**
McAfee's Nonsuch	**	**	Smoke House	**	**
Raule's Jannet	**	**	Yellow Bellflower	**	**
Missouri Pippin	*	*	Scalloped (or Striped) Gilliflower		
Sweet Romanite	*	*	White Pippin		
White Winter Pearmain	*	*	Swaar	*	*
White Winesap	**	*	Tolman Sweet	*	*
			Chenango Strawberry	**	**

WINE.—The committee to whom were referred several samples of wine, tried to determine their merits in the "usual way." On a scale of ten points they would mark 9 for the Concord and 8 for the Ives, presented by Dr. J. Stayman, also 9 for Catawba and 9 for White Concord, entered by Francis Goddard, and 7 for the Red Concord entered by the same.

APPLES FOR LOW GROUNDS.—A list of apples suitable for low grounds was then made out, which was as follows: Winesap, Missouri Pippin, Ben. Davis, Gilpin, Maiden Blush, Willow Twig, Red June.

PEARS—*Standard*—Bartlett**, Seckel*, Sheldon—,Flemish Beauty*, White Doyenne**, Howell**, Belle Lucrative*.

Dwarfs.— Beurre Easter*, Howell**, Louise Bon de Jersey*, Swan's Orange*, Duchess**, Lawrence*, Beurre de Angou*, Easter Beurre*.

BLACKBERRIES.—Kittatinny was retained on the list with**; the Lawton was then added to the list with*. The raspberry list was then taken up. The Doolittle Black Cap was then added *; also the Miami **. The Purple Cane and Philadelphia raspberry were then added to the list.

STRAWBERRIES.—Wilson was recommended for general cultivation; Downer's Prolific was taken on trial.

GRAPES—After much discussion the Hartford Prolific was stricken from the list of grapes to be recommended for general cultivation. After a lengthy discussion Ives Seedling was retained on the list, while the Concord was recommended for general cultivation. The Catawba was then added with the Delaware and Iona retained for special cultivation. The next annual meeting of the Society will be held at Topeka, on the second Tuesday in December, 1872.—ASSOCIATE EDITOR.

Plowing Vineyards in the Fall.

In *Coleman's Rural World*, Mr. Hussman makes the following remarks to what we said in Oct. No. of the POMOLOGIST AND GARDENER, respecting plowing vineyards in the fall.

"We are sorry that we are compelled to differ from our learned friend Prof. Stayman. We recommend plowing vineyards in the fall as one of the best preventives against washing, and can hardly believe that the Professor has ever tried it, for if he had, he would be convinced of its utility. His assertion reminds us of the old-time prejudice against deep plowing because it would wash, while everybody who has tried deep plowing know that deeply stirred and pulverized soil absorbs the rain and consequently washes but little, while soil which has been scraped only to the depth of two or three inches with the hard soil underneath, will naturally and inevitably wash off."

Mr. Hussman takes considerable pride in trying to make us believe that every thing he says is gospel, but what others say is simply assertion. That they have not "*tried it*," are "*prejudiced*," "*novices*," "*learned Professors*," irronically, etc. This method of reasoning may suit a dogmatical age, but it will make poor headway in a civilized and refined age. He boasts in the *Grape Culturist* of 1869, "an experience of some eighteen years of practical grape culture," yet in 1866, which would give him fifteen years' experience, he published a book on "The cultivation of the native grape," without giving one word upon plowing a vineyard in the fall. The first we find of this great discovery is in 1869, in the *Grape Culturist*. Now if it required Mr. Hussman eighteen years actual experience to find out the utility of fall plowing a vineyard, we should very much doubt its propriety unless he was very stupid. But he puts much stress upon *deep plowing*, but says:— "Soil which has been scraped only two or three inches with the hard soil underneath, will inevitably wash off."

Now, if he turns to the *Grape Culturist*, page 338, 1870, he will find how deep he recommends to plow. He says: "Plowing in the fall is very desirable, as it will cover up all the dead leaves and rubbish and leave the ground in good condition for spring. Plow about three inches deep, throwing the ground up to the vines." Now, according to his own showing, it will "inevitably wash off." "Oh consistency thou art a jewel." As regards *deep plowing* a full bearing Concord vineyard we think Mr. Hussman will try it but once, and if he did he says the "soil absorbs the rain." Then it is inexpedient, as our soil already contains too much moisture for the grape. He also says that plowing vineyards in the fall the furrow makes a drain. Does it not do so at any other time?" Will not our friend try it?" Mr. Godard, who has had at least forty years of experience in this country and France, who is not only intelligent and observing, but has one of the best vineyards here, never plows his vineyard but once, and that generally in the spring or summer, never in the fall. His Catawbas are healthy and perfect, while they are a general failure in other vineyards. We will attend to other criticisms of Mr. Hussman in our February number.—ASSOCIATE EDITOR.

New Fruits, Grapes, Pears, &c.

At the last annual meeting of the Illinois State Horticultural Society held at Jacksonville, Mr. D. B. Wier read a valuable paper on new fruits, from which we make the following abridgment:

Grapes. I have from Mr. Stephen W. Underhill, of Croton Landing, N. Y., three of his hybrid grapes, named Croton, Senesqua, and Long Bunched White. They were planted in our loose clay bluff soil, without manure. They have made good growth and proved perfectly healthy, and the Senesqua and Croton have this last season produced several bunches each of very fine fruit, and thoroughly ripened up their wood.

Senesqua. This is a black berry and bunch about the size of the Concord, ripening a little earlier. It would be called by most every one an excellent grape for eating, its flesh is of the same consistency throughout; crisp, sweet, and juicy like a foreign grape. I thought it had almost the exact flavor of the Black Hamburg, though a little sweeter and richer. The vine seems to be hardy, and I am inclined to believe it something of an acquisition well worthy of a trial at least.

Croton. This has also proven healthy, hardy, vigorous and productive. It has a larger bunch than the Senosqua, berry a little larger, of a translucent white, or amber color, when ripe. In flavor I hardly think it equals the Senosqua, but may be called very good, It has the same crispness of flesh, and both are, in fact, good foreign grapes on native vines. Neither have any foxiness or native aroma whatever.

Lacon. This, originated by myself, is still placed at the head of the list of pure native grapes in point of flavor, by nearly all who have tasted it. The vine is slender in growth. though healthy and hardy.

Ives' Seedling. I have found this to be the most profitable early grape, merely on account of its earliness. In quality it is inferior.

Pears.—Clapp's Favorite. If there is a pear without a fault on my grounds, it is Clapp's Favorite. So far as I can judge from a short experience of three years, it is hardy, healthy, foliage good, and an abundant bearer of most delicious, large sized, handsome fruit. I think it will prove a great acquisition to the Northwest. It appears to equal the Flemish Beauty in hardiness.

Doyenne Bousack. An *old* sort, but I must say a word about it. Though a little tardy in bearing, the tree is so perfect in health, the fruit so large, good, and handsome, that it should be better known and more extensively planted than it is.

Strawberries.—Charles Downing and Kentucky. The first named has immense berries of beautiful color and extra fine flavor, of medium season, but under very poor culture has not proven productive. The Kentucky, with me, was late, of fine size and color, and more productive.

Apples. There has been no new variety of apple brought to my notice, worthy of mention, except Stark and Banta's Autumn. The Stark was fruited widely in my neighborhood the past season, and in it, I think, we have one of our most reliable winter apples, for all purposes, especially for market. Banta's Autumn received from Metamora, Illinois, appears to be a most excellent fall apple; the tree is said to be very hardy and a great bearer, and is a native of our prairie soil.

One Practical and Intelligent Lady Horticulturist.

Mrs. Mary B. Messer of Groton, N. H., gives to the *Mirror* and *Farmer* some of her doings the past year in the garden and the orchard. She says:

"I do not wish to boast of my work, but merely want to show that women can do something to benefit the public. Perhaps some of the ladies would think it vulgar and immodest for females to graft trees, but I think it is good, healthy work, and a woman can graft a low tree just as easy as to do any other work. In April and May last I set very near three thousand cions, at home and away from home. Among them were pears, apples, grapes, cherries, plums — the golden-drop and royal-purple. I set the Bartlett pear into the sugar plum tree, one scion in a branch as big as the butt of a whip, and seven in one clump; cut down all the rest. I have measured two scions—one of them has grown eleven feet four inches, the other eight feet eleven inches. All the scions have grown almost as much as these two. I went to one of my neighbors last spring, did some grafting, and had one scion left. I found a little tree about an inch through at the butt; the top looked dead and it was all covered with bark lice I sawed it off within eight inches of the ground, and scraped the old, rough bark off and set in my last Baldwin cion; there were five buds; they have all grown fifteen feet and nine inches."—She also says she raised thirty and three-quarter pounds of prolific potatoes from eight eyes of a tuber that weighed but five ounces, and she "didn't half try."

Good say we for Mrs. B. One such woman is worth more to the world than a legion of fashionable idlers, who live only to consume.

The Pomegranate--Its Fruit and Beauty.

The Pomegranate, (Punica granatum,) this plant so celebrated in ancient and scripture history, belongs to the natural order Myrtaceæ, and to the class and order Icosandria Monogynia of Linnæus. The extreme beauty of the Pomegranate, independent of its rich

fruit, has caused it to be planted for ornamental purposes in every part of Europe, and where the winter is too severe, conservatories are erected purposely for the cultivation of this ancient fruit. On the borders of the promised land, Moses describes it as "a land of Wheat and Barley, and Fig Trees, and Pomegranates; a land of Oil-Olives and Honey." Solomon also speaks of "an Orchard of Pomegranate, with pleasant fruits." Russell, in his account of Aleppo, says the nightingale sings from the Pomegranate groves in the day time.

A tree, therefore, which partakes of the antiquity of the vine, the fig and the olive, and which, in point of utility, is numbered with the grain-growing plants and with honey, all constituting the principal food of the nations of antiquity in their early stages of civilization, must possess a considerable historical interest. Its extreme nutritiousness and rich peculiar flavor made it a favorite fruit with the ancients, and why not with us at the present time? It is of easy culture, requiring little more attention than the peach; it may be grown as an ornamental tree in the flower garden, or as a specimen plant on the lawn; thus adding beauty to productiveness. The tree does well in almost every soil and in this climate will bear freely and abundantly. Dr. Strenzel, at Martinez, from whom we received superb fruit the past week, has been very successful with the Pomegranate and has a large plantation of this fruit in bearing.—*California Farmer.*

How to Send Plants by Mail.

A correspondent of the *Hearth and Home* gives some excellent directions for sending plants by mail, as we know from some years' experience. The plan is this:—

Spread a thin layer of dry moss upon a sheet of paper, and after having washed the dirt from the roots of the plants, place them upon it in layers, putting moss between. When you have put in place all the plants you desire to send, place another thin layer of moss over them, and commence at one side of the paper and roll up the moss and plants very tightly, then wrap with oiled silk or oiled paper to keep the moisture in the package, and afterwards cover with paper upon which you can write the address. The firmer the package is rolled, if with sufficient moss, the less liable the plants are to break or be injured by rough handling. It is better to use dry moss and dampen the roots because there is not much danger of getting them too wet and causing decomposition; besides, the dirt has to be removed from the root of the plant, and it is done more safely with the use of water. By the use of dry moss and damp roots the moisture is just where it ought to be, while in using damp moss the foliage is apt to be kept as wet as the roots, and decay is very apt to follow.

The postage on plants is two cents on each four ounces or fraction thereof, packages not to exceed four pounds in weight. The postoffice law requires that all packages coming under this rate shall have the nature of the contents distinctly marked on the outside.

Plants that are received by mail should be shaded for a day or two after being set out.

Wier's Codling Trap--Cloth Bands.

Ed. P. & G:—Mr. Wier's comparison to prove the superiority of his Shingle Trap to Cloth Bands are by no means conclusive. "Under cloth bands on four trees no worms were found." Now, either these trees had no worms in the apples, or they found shelter elsewhere on the trees or *on the ground*; the latter Mr. Weir says they will not accept if they can possibly find one a little removed from it. From the great number we have captured under these bands—as many as sixty under one band. We believe that all will accept the shelter of a cloth band if no other is left for them upon the tree.

If a man can make and place upon the trees two hundred to three hundred shingle traps in a day, I am sure he can prepare and place twice as many cloth or paper bands in the same time; and as to four times the labor being required in examining and destroying the worms under cloth bands that is necessary in the use of the wooden traps, we will wager we can thoroughly examine and replace two to his one. We can also beat him handsomely in cost of material. If old shingles cost nothing, old carpets, old oil cloths and old paper

flour sacks cost as little, and are much more commonly at hand. If he buys new shingles or thin boards they must be very dry or they will warp, and they will cost more than new coarse cloth or strong manilla paper requisite for narrow bands. A gross of eight ounce tacks costs less than one of wood-screws, and will injure the trees less in their application.

Mr. Wier says he has been in large orchards thirty years, and that he has never seen but one Codling moth except those he has bred from worms. Will he please inform us how he *knows* "the moths of this first brood pair at once, and the females soon commence to deposit their eggs on the apples?" We believe the natural history of this insect has not been fully and truly recorded yet.—JAMES WEED, *Muscatine.*

About those Premium Plums.

EDS. P. & G.:—With all respect to the writer, I wish to criticise Mr. Redfield's article in the last POMOLOGIST about the plums he took to the State Fair "for a name," since which he says: To him " was awarded the first premium for the best show of plums. The committee must have come to the same conclusion that I did, that there was but a faint resemblance between the Lombard and Smiths Orleans. I very much doubt if there is any plum equal to it in hardiness."

About the "plums," I saw them—four or five specimens. They were so decayed that it would have been, and was impossible for the best judges, to correctly "name" them, but from a specimen of the twig (Mr. Redfield said,) of the tree that bore the plums, they were called Lombard, which the twig undoubtedly was. Now which is he calling hardy, Smith's Orleans, a decidedly tender tree here in the North, or the Lombard, that has proved as hardy as the other is tender here in Northern Iowa? About the " first premium," one must see that it would be a short-sighted committee that could award a " first premium" to a few specimens of rotten fruit, were there no others on exhibition. I saw two collections of Miner plums, with first premium cards attached, one in the professional list, and one in the amateur list, which was no doubt well applied, it being a late keeper, and no doubt hardy. If as he says, "many writers from Iowa and Minnesota request that we have fruits that are adapted to our cold climate," I answer let them have it, and correct information too.—J. T. MOTT, *Postville, Iowa.*

The Chestnut--Nut Bearing Trees.

ED. P. & G.—I have often heard it stated by those, and deemed good authority, that the chestnut could be grafted into the oak with perfect success; but after a full and free trial on different varieties of the oak, and at intervals, early to late, out of hundreds I only had two to live the summer through, and they only made feeble growth. I am not inclined to advise any one to embark in that operation if they want a chestnut grove. Grafting on the chestnut tree might do, but I deem the oak a very doubtful stock.

I have some of the common American chestnut growing, and they bid fair to succeed, but they have not fruited yet. I am growing it merely for the fruit. No necessity to grow it for timber, as I live in a heavy timbered region. I am also growing Black Walnuts and Butternuts for their fruit. Six years from seed, six out of nine Black Walnut trees have borne fruit the past season. And were I on the prairie, I should plant groves of these three varieties of timber. It would be a rich legacy to leave to posterity, both in fruit and timber; or, if young, a mine of wealth and comfort to the planter.—PETER M. GIDEON,—*Excelsior Minnesota.*

New Plan to Exterminate Rabbits.

ED. POMOLOGIST AND GARDENER:—We have been greatly annoyed with the rabbits. They have girdled our fruit trees and eaten off scores of small ones. They are an unmittigated nuisance. We have tried to force them out but the snow fell quite deep, there is a slight crust on it and Mr. Bunny walks over our fences on top of the snow where it lies high around the fence. We have trapped them in season and out of season. Now we

shall poisen them. We have wrapped some of our trees with coarse weeds and coarse paper. That is effectual but we cannot do it to all. Once we greased some small trees to keep the rabbits off. It *did*, but killed most of the trees. That was years ago.

We have a plan for wholesale slaughter of them. When the ground is frozen solid, at the first fall of snow search out their burroughs by following up their tracks to them. Go early at morning when they are all at home and fasten them in. As the ground is frozen they cannot dig out and there you have them, and we will guarantee they will trouble little more, but will have ample time to repent of their misdeeds, and opportunity to ruminate on the uncertainty of life. A. L. HATCH, *Ithaca, Wis.*

Western American Pomological Society.

EDS. P. & G.:—I fully concur with the idea advanced by the Corresponding Editor, in relation to the formation of a "Western American Pomological Society." We need it. Not to be in *conflict* with the American Pomological Society, or any other, but for the benefit, particularly, of the West. We all know there are peculiar western characteristics of fruits, soil and climate. We want more frequent and intimate interchange of experimental results of those who labor in this region. Let Illinois, Iowa, Kansas, Nebraska, Missouri, Wisconsin, and Minnesota move in this enterprise. Some one must start the ball. Let the "WESTERN POMOLOGIST" lead off, fix a time and place for the meeting of a convention to organize, and let the good work begin.—R. W. FURNAS, *Brownsville, Neb.*

REMARKS.—We would suggest one of the three points—Leavenworth, Kan., Kansas City, or St. Joseph, Mo., for a meeting of organization. At which point, and at what time shall the meeting take place?

Girdled Trees and A Remedy.

ED. POMOLOGIST AND GARDENER.—I have a remedy for saving trees that have been girdled by mice or rabbits. I have tried it and know whereof I affirm. I made a composition of grafting wax, bees wax, rosin and tallow in equal proportions, then procured old cloth, such as calico, or muslin, and made it into strips an inch wide, wound it into balls, just as nurserymen do for grafting, and boiled it in the composition until well saturated; I then wound it around the wounded trees, and although four or five hundred were injured and many gnawed all around and quite through the bark, I believe only one was lost. All have made good growths. I may add, that having used all the wax I could get, I used the rosin and tallow alone for some, and I have discovered no difference except in the cheapness of the latter. In doing the winding the hands should be greased to prevent sticking.—G. W. CHAPMAN, *Williamsburg, Kansas.*

The American Entomologist.

EDS P. & G.:—I regret to inform you that contrary to announcement a year ago, this magazine will not be continued during the coming year. The cost of publishing a paper so profusely illustrated with original figures is great, and the publishers, Messrs. R. P. Studley & Co., have lately concluded to discontinue it, as they have not met with sufficient financial encouragement. I have, however, since they so decided, purchased from them all the illustrations, and all interest in the magazine, and hope at no very distant day to recommence its publication myself. Meanwhile I take this means of thanking the many subscribers who, during the year, have sent in expressions of encouragement and appreciation. I shall ever be glad to hear from them on Entomological subjects, and to render them what little service lies in my power. By makiug this announcement through your columns, you will oblige—C. V. RILEY, *St. Louis, Mo.*

OLD APPLE TREES.—The New England Homestead says: "An old apple tree, more than a hundred years old is standing on the farm of L. A. Lamson, Southwick, which produced apples for more than seven barrels of cider, last year. This tree is fifteen feet and two inches in circumference at the butt, and measures around the outer edge of the limbs eleven rods. It is healthy, and in appearance is good for many years to come."

Ives' Seedling and Martha.

At the late meeting of the Ohio State Horticultural Society, G. W. Campbell expressed the belief that Martha could be raised wherever the Concord would succeed. It had been pretty widely disseminated and proved quite popular. He had been informed that in the Cincinnati market those that had been brought there in good condition, sold for eighteen cents per pound. It possessed rather more of the foxy flavor than he liked, but if left on the vine until it attained the yellow or amber color it gets when fully ripe, it loses most of this taste.

Of Ives' seedling, W. E. Mears thought a great difficulty with it was that persons were too auxous to harvest the crop as soon as the fruit turned black and before fully ripe. Mr. L. Flinck said the musk of the Ives seedling was heavier than the musk of the Catawba. G. Galloway said the Ives seedling was the only grape he had found that he could depend upon at all. He had never been an advocate for it, except for the simple reason that it was the only one they could raise to advantage. There was so much difference in the quality of the same varieties of fruit in different places, that he was led to believe it was the soil and locality that made the grape or other fruits.

Experience with Pasture Pines.

Some thirty years since, three acres of pasture land adjoining a pasture owned by us was bought by an old negro who was anxious to own real estate. It was at the time worth from five to six dollars per acre, was very stony, and covered with pines. He at once entered his new possessions, axe in hand, trimming up each tree finely and kept them trimmed to within reach of his axe.

Soon after his death (some fifteen years since) we purchased the three acres for one hundred and fifty dollars, and two years since sold it for four hundred and fifty dollars; a portion of our own pasture adjoining, having started a young growth of pines, we left a portion without trimming and trimmed the others; those trimmed are doing far better than the others, and we intend to trim them all this winter if we can get to it. I should not thin them, nature will do that, they will die out if too thick; where very thick, not much trimming is wanted as the trees grow more upright with less branches; we have usually trimmed close as possible and not wound the body of the tree. We think growing pines more profitable than mowing brush, the white pine grows so rapidly it will soon pay for the land on which it stands.—*Cor. New England Homestead.*

Grapes Spoiled by Pruning.

The Santa Clara (Cal.) *Agriculturist* gives the following good advice on summer pruning.

If your fruit is "too much shaded" by the leaves, don't be alarmed. It is not the effect of the sun on the fruit, but on the *leaves*., that gives a luscious perfection to the fruit. This is a fact worth thinking about. We have seen grapes exposed to the sun by cutting away the naturally sheltering leaves, to give the fruit color and early maturity. The effect was just the opposite intended. As the largest portion of the substance of a tree or vine is extracted from the air, the leaves have an important work to do in collecting a store of food for the forming of buds, the wood growth, and the enriching of the sap for another season's start.

The summer pruning of grape vines we totally disapprove of. In every case where a fair trial has been given, the vines not summer pruned have shown the best results in fruit and vigor of plant.

American Pomological Society--Its Catalogue.

The Committee on revision of the catalogue of the American Pomological Society, have adopted the following plan:—To enlarge the size of the pages from 6 and 9 inches, to 8 and 11 inches, thus giving a column for every State and Territory in the Union, as well as for Canada, Nova Scotia and New Brunswick. To group the states according to their latitude, instead of alphabetically. To have a special mark to designate such new varieties as have succeeded well for five years in any section.

Arsenic and the White of Eggs for Rabbits.

A correspondent of the Rural World saves his trees from rabbits by the use of arsenic mixed with the white of eggs. He takes the limbs or twigs of trees, smears them with the egg and arsenic mixture, and lays them about among the trees. The rabbits prefer the tender bark and buds to the harder bark on the stems of the trees, and one meal suffices for all time. "It kills them sure." No doubt this plan is a good one, for we know that the simple distribution upon the ground of tender brushwood about the orchard or nursery is a great protection to the standing trees. We think rabbits prefer the bark of the apple tree to that of any other. A *little* of this kind of cheap feed may be spared from the tops of any orchard just as well as not, and may save many dollars worth of trees

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What are Shrubs and their use?

Shrubs are defined as plants with woody stems, perennial in their nature, and which do not grow to any great height—ten to fifteen feet being about the dividing line between what may properly be called a shrub and a tree. No garden or front yard is nearer completion without shrubbery, than is the dwelling house without furniture. Of late years ornamental gardening has received greatly increased attention; and equally with other branches of ornamental gardening, the list of shrubs is largely on the increase. To properly arrange shrubbery so as to present the most pleasing effect, the usual hight and habits of growth of the shrubs employed must be carefully studied.

Fruit and Intemperance.—The Pall Mall Gazette (London) says: "Perhaps one of the chief reasons why there is so much intemperance in this country, is to be found in the difficulty of obtaining any good fruit at a reasonable price. How small a percentage of the inhabitants of London have ever tasted a peach, for instance! Grapes are a luxury only within the reach of the wealthy, and except sour apples and oranges, the poorer classes have no fruit which they may call their own. For some reason or other, fruit appears to become more scarce each year in this country. Nectarines and apricots, once common, are now rarely seen, and in a few years will probably disappear entirely."

Pruning the Vine—Effects on the Fruit.—A correspondent of the Florist and Pomologist says: "According to my experience, tested over and over again, the spur yields a larger but less compact bunch, more likely to shank than the hard produce of the wood closer home, which yields a more compact, neat and serviceable bunch, and generally with larger berries and stiffer foot-stalks than the larger buds further up the shoot. I hold it to be wrong to judge of the produce of a vine by the size of the bunch. The aim of the family grape grower is fine berries, and compact moderate sized bunches in great numbers. Tested by family usefulness, and commercially by the demand of the market, the smaller and compact bunch takes precedence of the big bunch. If serviceable bunches are wanted, prune back to one bud; but if larger, looser, and less serviceable bunches, then cut to the fourth or fifth bud."

A Beautiful Flower—The Holy Spirit.—The Pacific Rural Press says: "That rare flower, *Espirita Santa* or Holy Spirit, in the south-west conservatory at Woodward's Gardens, in this city, is now in bloom for the second time. This, we believe, is the only specimen which has ever flowered in this city. The plant grows from a bulb as a lily, and bears a round white flower like an inverted cup; the bottom of the cup is like the head and beak of a dove, with the wings projected in front of the body, as in the descent of the Holy Ghost represented in churches.

Peaches for the Whole Nation.—It is said that "to our credit the United States is the only country in the world that, either in ancient or modern times, has produced peaches in sufficient quantities to allow them to become a common marketable commodity; so cheap, that the poor, as well as the rich, may regale themselves and their families with one of the most wholesome and delicious of fruits at a very small expense, and with every prospect that they will be still more abundant and cheap."

Raising the Red Cedar from Seed.—Mr. Samuel Edwards, of Illinois, whose fame as an evergreen tree grower is wide spread, gives the following method for preparing Red Cedar seed for planting and its after treatment: "Bruise the berries early in March, and mix with an equal or greater bulk of wet wood ashes. In three weeks the alkali will have *cut* the resinous gum, when the seeds may be washed clean from the pulp. Sow in rows a foot apart, (to admit clean cultivation), in a rich soil, well dressed with a mixture of leaf mold and a sharp sand. Shade the bed during summer, and cover with two inches of leaves for winter."

Brooding of the Curculio.—To the question whether the Plum Curculio produces more than one brood yearly, J. T. Gilbert, M. D., of Mobile, writes to the Practical Farmer: "The insect finds the young and tender fruit of early spring the most prolific nidus for its propagation, but our investigation proves, beyond mistake, its production of eggs in late summer that are capable of developing its kind, providing a suitable nidus is obtained. And the fact already stated, that the young and tender fruit of spring furnishes the most fertile source for its propagation, explains why we are more aware of its existence early in the season."

The Larch for Wine Casks.—The Scientific Press in speaking of the usefulness of the Larch for lumber, among other good qualities, says. "It is but little inclined to shrink, and is odorless, which latter quality especially renders it extremely valuable as a timber for wine and other casks, and for which the demand must constantly increase. For grapevine and other stakes, it is said to have been known to do duty in Switzerland and Germany for two full generations."

Cork Tree Growing in the South.—The Greensboro' (S. C.) Patriot says: "Mr. A. Reid, residing near Hillsdale, in this county, has on his plantation several Velvet Cork trees which are in a thrifty condition and growing rapidly. The specimens of the cork before us, handed in by one of our leading druggists, are very fine. It is suggested by him that some of our enterprising citizens turn their attention to this new product of Guilford, as it is a very valuable article, and always finds a ready sale."

Peach Orchards in Clover.—Mr. W. E. Mears of Milford, Ohio, speaks of a peach orchard of five hundred trees in bearing five years, that produced last year 1000 bushels; eight hundred and fifty bushels of them good, marketable peaches. The ground in this orchard had remained in clover without any plowing, hoeing or hogging. The soil, though worn down, was a good natural soil on the second range of hills in that county. Another orchard in the same neighborhood which had been in clover three years, produced Crawford's Early that brought from $3 to $3.25 per bushel, when they could be bought from $1 to 1.25 per bushel from other orchards.

Active Principles of Plants.—It is asserted by scientific bottanists that the active principles of plants, according to recent investigations, are more concentrated in the leaves of plants grown in cold climates, where the vegetation is less vigorous than in warm climates. In illustration the well-known facts are cited that tobacco grown in northern regions is stronger than the same plant raised in mild or tropical regions, and celery, it is stated, is affected in the same way by the influences of temperature and moisture."

Mammoth Grapes.—The Marysville (Cal.) *Appeal* acknowledges the receipt of a bunch grapes upon which it says "is one grape that measures four and a half inches in circumference. It has precisely the shape of a tomato, and appears to be the result of a number of grapes growing together, although the outward contour is uniform.

The Bellflower in California.—The California *Horticulturist*, says "that fine, rich and tender apple, the Bellflower is running a good race with the renowned Newtown Pippin, and the choice, fine, rich, and delicious flavored Æsopus Spitzenburgh.

☞The wine product of Los Angeles (Cal.) county alone for 1871 is estimated at one million, two hundred and fifty thousand dollars.

Amount of Rainfall.—Prof. Henry says that the observations of the Smithsonian Institute, which extended over a period of twenty years, have as yet failed to confirm the popular belief that the removal of the forests and the cultivation of the soil tend to diminish the amount of rainfall.

Pear Trees in Grass.—A Maryland correspondent of the *Gardener's Monthly* writes:—"When is the question of grass or no grass for fruit trees to be settled? The finest and most prolific of my pear trees are in heavy grass sod. They get, every winter, a top dressing of coal ashes, on which kitchen and chamber refuse is thrown."

St. Crispin Pear.—This is a variety of pear recently introduced, of size like unto the Bartlett, of better quality and ripening just after Bartlett and continuing a month or more, thus filling the want of the people for continuance of Bartlett. He who plants of it will win pecuniarily.—Elliott.

☞The great causes of failure with window plants are—*room too warm, pots too large* and *overflowing.*

Books and Periodicals.

Dreer's Garden Seeds.—Dreer's catalogue of field and garden seeds, plants and bulbs, should be consulted by every farmer and horticulturist, coming as it does from one of the oldest and most reliable establishments of its kind in the country. A three cent stamp addressed to Henry Dreer, will get a copy.

Gregory's Catalogue.—To James J. H. Gregory, Marblehead, Massachusetts, is the public indebted for the introduction of some of the most valuable productions of the garden. Mr. Gregory has won a most enviable reputation for correctness and fair dealing.

Vick's Catalogue.—A better thing in the line of catalogues is not to be found than Vick's Illustrated Catalogue and Floral Guide, just out for 1872. Its illustrations and typography can't be beat, whilst it pages overflow with rare instruction.

The Pioneer Farmer.—This is an agricultural and horticultural monthly of 32 quarto three column pages, by B. L. Northrop, Council Bluffs. The *Farmer* has a host of able correspondents and as a matter of course its pages are full of life and instruction. It is every way worthy the patronage of the farmers and fruit growers of Iowa.

Protection.—Dr. John A. Kennicott used to say in his talk about protecting orchards "Talk of orchard protection—why, the best I know of is, get low stocky trees, and make the limbs and spread out low."

A New Western Enterprise.—A new weekly, of choice reading for the family circle, reaches us from Chicago. It is an original Family and Story Weekly, with stories and poems illustrated; large size, eight pages, well printed on fine paper, and bears the neat and suggestive title of "Our Fireside Friend." It is published by Waters, Everts & Co., of that city. The contents are fresh, varied, interesting, and of high tone, and the illustrations are excellent. The continued stories are by able writers, and give promise to be of great interest. Short Stories, Sketches, Poetry, News, Science, Arts, Answers to Correspondents, Items for the Ladies, etc., with special departments for the Farmer, the Housewife and the Children, make up eight pages of instructive and entertaining reading for old and young.

The Little Corporal for January makes his salute in a handsome new uniform, having laid aside his military dress and donned the garb of peace. We are pleased to note this new departure, and deem it timely and proper. This number contains the first chapter of the Prize Story, which opens out in a very interesting manner. The illustrations are fine, and not excelled by any other similar periodical in the land. While parents and children are looking for something nice for the New Year, let us suggest a trial of the Little Corporal. Terms $1.50 a year. John E. Miller, Publisher, Chicago, Ill.

A prominent feature of this number is Will. M. Carleton's great poem, "The Burning of Chicago," his best production, which the publishers have beautifully illustrated. This publication is a new enterprise in the West. An original and illustrated Story and Family weekly has never been established west of New York, there is no reason why one should not be sustained, and "Our Fireside Friend" certainly is meritorious in its contents and general appearance, and it starts under such circumstances of financial and business ability as to guarantee its permanency. The Publishers will send a specimen copy free, to any address. We suggest to our readers the propriety of securing Will M. Carleton's Poem, "The Burning of Chicago," illustrated, which the Publishers will send free to all who send their address.

School-day Visitor—Sweet Sixteen.—*The School-day Visitor Magazine* for January comes in the full flush and bounding health of "Sweet Sixteen," and right heartily do we welcome it and give it our New Year's greeting. We wish all our boys and girls could become acquainted with this charming Young Folks' Magazine, for we know they could not help liking it and wanting it, for it is only one dollar a year. The *Visitor* is firmly established, being now in its sixteenth year, and is in every line, true and pure and good. A story from Harry Castlemon, the great story writer for boys and girls, commences in the January number, entitled "Our Fellows," which will delight everybody, we are sure, who reads it. Send a green stamp to J. W. Daughaday & Co., Publishers, Philadelphia, and get a specimen number of the *Visitor*.

The School Festival.—This beautiful little quarterly magazine devoted to new and sparkling matter for *School Exhibitions* and public days, is received for January. No teacher or pupil should be without it. It costs only fifty cents a year; single copy, fifteen cents. Write for it to Alfred L. Sewell, Publisher, Chicago, Ill. Send your subscription *now* and you will not regret it.

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THE POMOLOGIST

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MARK MILLER, Managing Editor and Publisher, Des Moines, Iowa.

Dr. J. Stayman, Associate Editor, Leavenworth, Kansas.
Dr. Wm. M. Howsley, Corresponding Editor, Leavenworth, Kansas.
Dr. S. H. Kridelbaugh, Entomological Editor, Clarinda, Iowa.

Reply to Hussman's Criticisms.

BY THE ASSOCIATE EDITOR.

It appears almost superfluous in us to reply to such criticisms as Mr. Hussman has made in *Colman's Rural World* of December ninth, upon what we said in the POMOLOGIST AND GARDENER, under the Vineyard head for November. Editorial courtesy, we should think, ought to have induced him to give credit to the POMOLOGIST AND GARDENER for the article copied and then sent us a copy of his criticisms upon the same. Friend Hussman reminds us of a sore headed, disappointed politician, who has become disgusted with everything earthly, except his own opinions. He believes every person who does not agree with him, a "*novice*," possessing nothing but "*chaff*," or *gas*." He appears much moved about his sense of duty toward his fellow men, compelling him to point out our *errors*. Hear him:

"We regret that a sense of duty towards our readers compels us so often to tread upon the toes of Dr. Stayman. Were the above spoken in one of our horticultural meetings by one of the novices in the business, we might let it pass as belonging to the inevitable amount of "chaff," or "gas," of which some men relieve themselves, and to which their unfortunate fellow-citizens must patiently submit, as among the inevitable accessories to such an occasion; but, when a man assumes the province of a teacher and gives monthly advice to his readers about the management of their vineyards and wine, he must expect to be held to account, and if he commits errors or gives bad advice, we consider it our duty to point out his mistakes and censure them when they deserve it."

We would have supposed that after such labored attempt to work up the imagination of his readers to something awful we had done, that he would have been able to point out some of those "errors," "mistakes," or "bad advice;" but this is not the case, neither does it appear to have been his design, from his misrepresentation and quibble about the proper use and meaning of words and phrases. We fear it is not the "errors" we have committed which has called forth his tirade upon us; but rather our disapprobation to the use of sugar and water in making wine, which we think the sequel will prove..

He says: "The Doctor heads his remarks, 'essential qualities of a wine grape,' and from this heading the reader would naturally expect that he would be told something about them, or that any of the varieties named would be discussed. We do not hear a word of this, however. We are only told that the Concord will not be popular as a wine grape, and that the Doctor does not believe in adding sugar and water. He asserts that by reducing the acid by the addition of water the result is a fiery wine, without boquet or aroma. We rather think it would become flat and watery unless sugar, also, was added. But no doubt he meant this, although it is not mentioned."

Is it possible that "sugar is not mentioned!!" Where is that sense of duty now, which compels him to correct our *errors*, but not his own mis-statements? For we said, "Wine made from the Concord, when it marked on the must scale seventy-five to eighty degrees, makes too harsh and unpalatable wine to ever become popular, although some contend it can be made so by the addition of sugar and water." "If wine were made up simply of

sugar and water that method might be correct; but this is not the case, for when you reduce the acid by water you reduce every essential principle of the grape, and the result is, you have a fiery wine without aroma and boquet." Here we have given two sentences, in both of which we have mentioned sugar. In the latter part of the last sentence he has made an imperfect quotation from it to suit his purpose. We said in our article, "By obtaining must of a high, saccharine quality, we reduce the acid and increase every essential principle in like proportion and give *age*, *smoothness*, *aroma*, and *high boquet* to our wines." To which he remarks:

"Truly a marvelous assertion! How ripeness of the grape, or the amount of sugar the must contains, can give *age* to the wine, is a problem we would like to hear solved by the Doctor. We rather suppose, in all simplicity, that as the grapes must hang so much longer to become thoroughly ripe, the wine would be younger instead of older."

How remarkably annoyed Mr. Hussman must have instantly become at seeing the word *age*, to exclaim: "Truly a marvelous assertion!" as if age only meant length of time. It is a great pity such intelligence should be wasted in "Gallizing" wine. Why not make a grape and wine vocabulary to enlighten this *age?*

If he consults an *English* vocabulary he will find that age is as much a condition as length of time, as "Any period of time; time of life; a hundred years; *maturity;* decline of life." Now, if he cannot understand *age*, substitute the word *maturity*, which will read thus: "It will give *maturity*, *smoothness*, *aroma*, and *high bouquet* to our wines." The consultation of a vocabulary might have saved him the ridiculous position he is placed in before the public in his criticisms upon the word *age*. And to further show that it does not always require length of time to mature wine, we will prove it by Mr. Hussman's own words: "Delaware, made this season, from half ripe grapes, was valued at $6.00 per gallon within six weeks from the time it was made. It was a perfect wine then, clear and fine, and with an exquisite boquet."—*Grape Culturist, August*, 1870.

He next says: "Again, the terms aroma and boquet are generally supposed by him to go together, while they so essentially differ that they are rarely found together in the same wine. Aroma we call the special flavor and scent of the grape, which is developed strongest in perfectly ripe fruit; while boquet is developed during fermentation, by the action of the alcohol upon the acid. Thus a wine has generally but little boquet in it, it is very aromatic, because the grape in its greatest state of ripeness contains but little acid."

It is very evident from this last sentence that he has become considerably mixed up, and has failed to make himself intelligible. We have been so accustomed to this back-handed German manner of expression that perhaps we can transpose it and help him out of his dilemma. When transposed, it will read, "Thus a wine that is very aromatic has generally but little boquet, because the grape in its greatest state of ripeness contains but very little acid.

Now, if this were true, then a wine that contained much acid would have a very high boquet and little aroma; therefore, green grapes are the best for wine. How he discovered that "the terms aroma and boquet are generally supposed by us to go together," is another of his mysteries which he will have hard work to prove, from anything we have said, unless it is by having the terms conjoined by *and*.. If so, then the expression, a vigorous and productive vine, proves that they generally go together.

But when Mr. Hussman begins to tell us what he knows about *aroma* and *boquet*, we must confess that we lose entire faith in his ability, when our best chemists and authors tell us: "Neither the general flavor of the wine nor the boquet is present in the must; but the matter or substance exists there from which these are developed during fermentation and in the cask."—*Gall.*

"Dr. Winkler (a chemist distinguished for his explanation of the process of vegetation) has succeeded in throwing new light on the origin of the boquet. He obtained from a wine of rich boquet a peculiar nitrogenous compound, in the shape of a neutral salt, which possessed in the highest degree the flavor of the boquet of the wine. He therefore draws the conclusion that ripe grapes furnish a delicious boquet, while unripe grapes produce a repugnant one." (Hussman thinks "half ripe" grapes produce "an exquisite boquet.")

But *The Wine and Fruit Reporter*, in a translation from Prof. Neubauer, sets this matter

in its true light. He says: "A part of the odorous substance of ready wine is already contained in the grape. But the principal aromas, and just those which more than all the rest form the pleasant boquet of the wines in the northern wine districts, are certainly the product of fermentation, through which their formation is effected, from certain substances of the grape. Those substances, however, are as yet wholly unknown to us, and chemistry has not yet succeeded in analyzing them." (Hussman says it is "alcohol upon the acids.") We think this settles the question for the present, Hussman to the contrary, notwithstanding.

He says again: "But all at once the Doctor discovers that the art of wine-making consists, not in finding a grape possessing all the essential qualities, but in mixing and blending the good qualities of different varieties. We admit that advantages may be gained sometimes by mixing the must of several grapes, (We are then once correct.—Ed.) but we would rather have a perfect grape, if it can be had; and as the Doctor does not mention the essential qualities of a wine grape, we will try and do so for him. (And a nice fist you have made of it.—Ed.) They should be: 1. Freedom from disease in properly located situations. 2. Sufficient fertility to make it a paying crop. 3. Its must should contain sugar, acid, tannin, water—in short, all the ingredients necessary to make a good wine in just the necessary proportions. 4. It should have a delicate and pleasing flavor, instead of the offensive foxiness of so many of our native grapes."

This last effort of Mr. Hussman certainly caps the climax. He has gone around "Robin Hood's barn" to give us the essential qualities of a wine grape, and has landed just where he commenced, without giving us anything more definite than the following: "Its must should contain—in short all the ingredients to make a good wine, in just the necessary proportions." What a discovery this is! Your "novice" might have told even as much. Have not all grapes got sugar, acid, tannin, and water? Then, as far as these ingredients are concerned, every grape possesses the essential principles of a wine grape; but not, perhaps, in the right proportion. But as you have not given that, you have defined nothing, so far as your third proposition is concerned.

As regards his first proposition: What has disease to do with the essential qualities of a wine grape? Is not the Catawba a wine grape, in spite of its disease? It might have something to do with profit, but it can have nothing to do with the perfect grape itself. Likewise with his second proposition: Is not the Taylor a wine grape, regardless of its fertility? Does it not make a good wine? Finally, his fourth and last proposition is embraced in his third, for if a grape possesses all the essential ingredients to make a good wine, it must have a "delicate and pleasing flavor." So, after all his effort to give the essential qualities of a wine grape, it has dwindled down to the latter clause of his third proposition, which leaves us in the position of the child who said, "the grape made a good wine, because it is a way it had." Now what does all such teaching amount to, and wherein has he pointed our "errors," or "*bad advice?*"

Grafting the Grape.—Vineyard Work for February.

By the Associate Editor.

This month like January, there cannot be much work done in the vineyard, except to prepare posts and stakes for trellis, etc. Everything should be on the ground ready to put up as soon as the weather and ground will permit. You should not work in the vineyard when the ground is too wet, as it will pack and bake the earth and make it hard and clody. In mild weather you may prune vines if not already done, but not when they are frozen. You should not delay pruning longer than in March. Have it all done before the vines commence to bleed which is the best rule that we can give, which is adapted to any latitude or location. As there cannot be any definite rule given how long vines should be pruned, we will simply state that a strong three years old vine of such varieties as Concord, Ives, Norton, you may leave on two canes three feet long each, and a four or five years old vine about four canes four feet long each. Such vines as Delaware, Catawba and Alvey, about half as much wood. And such varieties as Clinton and Taylor, even longer than Concord, and on *lateral canes* which will be fully illustrated and described in a series of articles on the cultivation and training of the vines.

Grafting the vine may also be sometimes done in this month in this latitude. We here re-produce our article upon grafting the grape—published in a previous volume, and which is the most successful method that has ever been tried. If done as described it will be almost as certain as any method of grafting. March is generally the best time to do the work, but it is best to know in time how to do it, so you can be prepared and get your cions, etc.

Grafting must be attended to as early as the frost leaves the ground. You should cleft graft below the surface of the ground—all the directions for which with diagrams were given in Vol. 1. For the convenience of new subscribers not in possession of that volume, we will re-produce all the particulars there given, with the diagram:

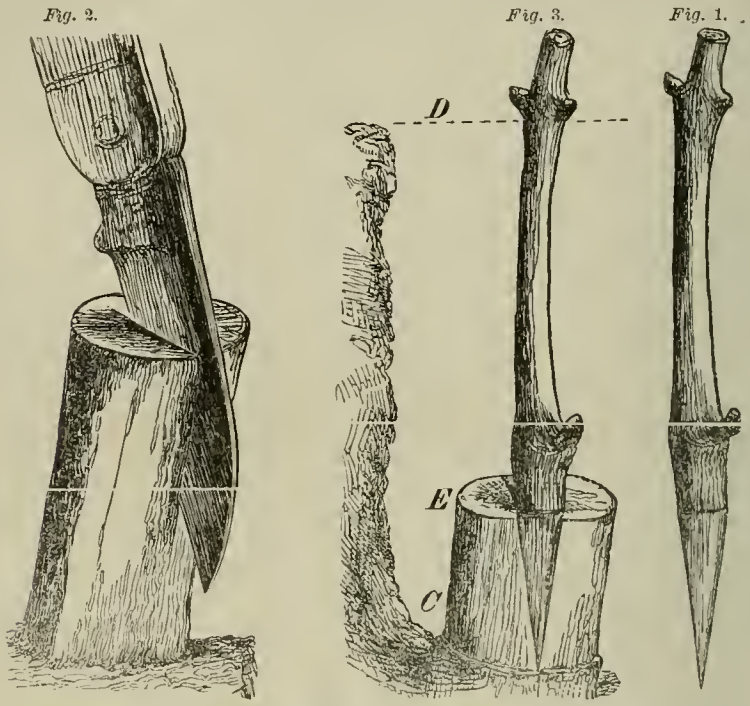


Fig. 1. A graft natural size and length sloped ready to insert. Fig. 2. Manner of splitting stock, showing knife drove full depth. Fig. 3. Graft inserted and the earth removed. E to C showing the outer bark taken off the stock and cion as far as inserted; D showing the earth line when filled up and completed.

To succeed well the stock should be at least two years old. Take the earth away from around them about four inches deep, and cut the vines off at a clean smooth place about two inches below the surface of the ground. They should be grafted soon after cut off and not exposed to the wind, sun or air long.

If not immediately grafted cover them over with earth until you are ready. Cut the top of the stock smooth and then *peel off all the loose bark* (leaving none but the inner, thin bark) around the stock as low down as the graft goes; split, or rather cut the stock by holding the knife (which should be straight on the edge) nearly perpendicular on the side you wish to insert the graft, and strike it gently with a light mallet until you cut it deep and low enough to set the graft, but be very careful not to cut through to the opposite side; then with a very narrow iron wedge, thickest on the outside, drive it gently until you open the stock wide enough to insert the graft, but not so as to split it through to the opposite side. If the stock is small use small or thin cions, cut them with two or three buds if short jointed, (if scarce, one bud will do provided there is length of wood below the bud of two or more inches) *peel all the loose bark off* (leave none but the thin

inner bark) on the end so far as inserted in the stock; wedge the graft so it will be the *thickest* on the *outside* to exactly fit the split and match the stock; place the graft in firmly so when the wedge is removed the stock will hold it securely without tying, with the greater pressure on the outside of the graft (use no wax). If the stock should split through, cut it off and try again; if careful, this will seldom happen; pack the earth around the graft firmly and let but one bud be level with th surface (never below); if too high, mound up the bud. In case you cannot cut off under the ground, the graft can be inserted above, using the same length cion, and bank up the earth firmly to the upper bud.

It sometimes happens in old wild vines, as well as those cultivated, that the roots branch out at or near the surface of the ground. In such instances were we to cut them off below the surface roots we would loose the full strength of our stocks, therefore in such cases it is best to cut them off above these roots but as near to as convenient and graft the stocks there and bank up as before mentioned.

If the grafting is done early in the spring it is best to cover the graft several inches with earth and let it remain until all hard freezing is over, otherwise the frost might lift the grafts out of their places. When all danger is over remove the earth and let the upper bud expand. Never allow a bud to be in a hole to fill with water and mud. Watch and keep the suckers down or they will soon rob the graft, Cultivate well and protect the grafts by tying them up to stakes as fast as they grow. The earlier the work is done the better.

Monthly Observations in Gardening, (1771.)

By William H. Yeoman, Columbia, Conn.

Eds. Pomologist and Gardener:—In looking over some old books a short time since I came across something of a curiosity, bearing the above title. The book was published just one hundred years ago, and thinking it might interest others as well as myself, I give the same, with its original spelling and superfluity of capital letters:

January.

There is little to be done in Gardens this Month; but you may gather Sheep's Dung to mix with earth to be rotting a Twelve-month, to lay Flowers with: And you may cut off the downright Roots of such Trees as yearly bloom, and bear no Fruit, burying a dead Dog or Cat under the Tree; often casting Soap Suds near the Root, or the Dirt of the Sinks of Wool-Combers or Street Dirt of the Sinks of great Towns.

February.

If the Frost has killed the Cabbage-plants you set in September, sow the seeds now in a Hot-Bed thus made: Dig a Grave of what Length and Breadth you please, where the Sun shines most, and sheltered from the North and East Winds, about two Feet deep, tread it full of Horse-Litter, with the Dung, and cover the Dung near Half a Foot thick with fat Earth sifted, covering it with Pease-Straw or Mats, only in cold Nights; the Seeds also of Musk-Melons, Colliflowers, Cucumbers, Purslain, and Lettice, may be sowed therein. You may now plant the Suckers of Currants, and Gooseberries, though October is the best Time: Sow Garden Pease; for the Beans set them about one Foot asunder, with a Setting-Stick.

March.

Trim the leaves of Clovegilliflowers with a Pair of Scissors; sow Parsley, Carrots and Turnip Seeds, and Parsnips; and set Carrots and Turnips to raise Seed; set Onions and Leeks to put the Tops among Pot-Herbs; prune the Apricot late; take the Litter from off the Asparagus Bed; dig it with a Fork a little, and sift some good Earth thereon; if you make a new Bed, do it as the hot Bed last Month, and lay the same Roots you may buy of a Gardener on it; or you may sow the Seeds in a Bed of good Earth, and it may do well enough, so as you take off all Weeds; and it is not so tender that it needs covering in Winter, but to fatten the Bed, and cover them by sifting Earth on them, and let them run to Seed two Years before you cut the Buds to eat; dig the Weeds and Tops of the Artichoke into the Bed, laying the Earth level, leaving but one or two of the strongest to

each Root, casting away the Suckers; Plant the shortest-stalked Cabbage plants near a Yard asunder, setting them pretty deep on the Edge of your Carrot-ground; being set one Month draw Earth upon one side of the Stalks, to lay them flat upon the Earth and they will cabbage the better; Sow Clovegilliflower Seeds. A Parsley Bed may serve for Use many Years for a Family if you take Care to pluck off such Shoots as are likely to shed, as often as you see them seed. When yon see the Tulip-Leaves begin to peep out of the Earth, spread your Flower-Garden all over with fat sifted Earth, mentioned in *January* or Wood-Pile Earth, or the Earth that Moles work up in a rich Pasture, and when you see a very great Hill lately cast up, dig to the Bottom to find her Nest. Now you may dig in rotten Horse-dung into your Garden, set more Beans and Pease, and graft.

April.

In this Month chuse the Evening of a rainy Day to set the Cuttings of Thyme, Hyssop, Marjoram, Savory, Penny-Royal, Balm, Mint, &c. for Winter Greens, Hedges to be clipped square after Rain, often letting such Herbs grow out of the Flower-Garden for Use; You may also part the Roots of most Things, cutting off their Tops and most of their thready Roots before you set them; the Boughs of Fruit Trees, that grow too near each other may be set at some certain distances, with Weights or Cords to remain so for four or five Weeks. Young Fruit Trees should be slit in the Bark from the Head to the Root, at three or four Sides, to prevent their being hide-bound. Cut off all the dead Twigs out of Bays, Lawrel, Roses and all other Bushes; plant Colliflowers, and cut off all the Strings of all Strawberries, except the Wood and White ones; remove the young Clovegilliflower Plants sowed of Seed the last Month; set Rosemary-Slips (turning the Ends,) very close to a Wall, and with Leathers nail it thereto while it is young, but not too close to the Wall. If the Vine hath no Leaves before the 20th Day of this Month, all the cold Weather is not past.

May.

Dig Dung into a Bed to sow Purslain in. If the Ground is not wet nor cold, sow Scarlet and Kidney Beans in light Ground, covering them lightly, because a Bean comes up, and turns up two Leaves. Where any places of your Crop for Carrots miss coming up, there make Holes like deep Scuttles, which tread almost full of Horse-dung, covering these with Earth; [see *Hot-Bed* in February;] and sow Cucumbers therein, nip off the superfluous Branches, and watering when Need is. The Garden Beans being in full Bloom, clip off the Tops of the Stalks, and the Tops of the other Bushes, where they crumple up, because Vermin breeds in them. Tulip leaves being dry, you may take up the Roots, and being dried from the Dirt, put them in a Box, and cover them with Sand: Take them up once in three or four Years, if you will, and set them again in *September*. Put the Off-sets in a Box by themselves; if you take not up the Roots, cut not off their Leaves.

Although the above and what follows were published in London, England, so long a time ago, some of the suggestions may be profitably observed at the present day. Balance of the year's observations next month.

The Pear on Mountain Ash Roots.--Root-Grafting.

By D. B. Wier, Lacon, Ill.

Ed. Pomologist and Gardener:—H. C. R., of Council Bluffs, would "inquire of those who have had experience, if it is in any way advantageous or desirable to graft or bud the Pear upon Mountain Ash Stock?"

Having had some experience in this way of propagating the Pear on the European Mountain Ash (*Sorbus Aucuparia,*) I would say that so far as may be learned from twenty-three years' experience with it, it is undoubtedly as good as any stock for the purpose. Those who have had the most experience with it, and therefore know best about its merits, have no hesitancy in recommending it as the *best* stock for the Pear, especially North. Its advantages are perfect hardiness or ability to withstand cold. It starts in growth early in the spring, and matures its growth early in autumn, by this being well adapted to the extreme North, and giving the advantage of no second growth in the Pear, or at least rarely any. It causes the Pear to grow with full vigor on very poor soil, and does not

cause it to overgrow on very rich soil. These are some of its advantages, and for one I can see no disadvantages in it, except it be, that if the Mountain Ash Stock is exposed above ground, it is liable to the attacks of the Round Headed Apple Tree Borer (*Saperda Bivitata.*) This is easily remedied by placing the union of the Pear and Ash just below the surface of the ground. And the Mountain Ash is somewhat liable to throw up suckers from around the collar, but never suckering up from the roots. This small fault is of no consequence whatever.

The European Mountain Ash is a long lived, healthy tree, thirty to forty feet high, a native of Northern Europe, belongs to the same order and genus as the Pear and Apple, but a different sub-genus. The Pear is the type of the genus *Pyrus*, of the order *Rosacea.* The so-called Mountain Ash belongs to the sub-genus *Sorbus*, of the same genus and order. It is the Rowan tree of England, no more related to our Ashes proper than Oaks are. The American Mountain Ash (*Pyrus Americana*) is a much smaller, slower growing tree of the extreme North, though hardy and long lived, and is probably of equal value as the European for a stock for the Pear, especially if we wish a more dwarfing stock. The union of the stock and graft is so perfect between the Mountain Ash and Pear as to excite the attention of vegetable physiologists. Perhaps there are no two distinct species making a more perfect union.

We now come to perhaps the greatest value of the Mountain Ash in propagating the Pear, which is the fact that the pear can be root-grafted on to its lateral roots with most gratifying success. These root-grafts, eventually, if we so wish, give us perfect pear trees *on their own natural roots. Such* trees I think would suit "H. C. R.," or any one else who wanted a perfect standard pear tree. Or, we can so handle them as to give each tree two systems of roots, the Ash roots running horizontally and not deeply, the Pear roots running and feeding below them, the two systems not interfering. Or, we can maintain the tree on the Mountain Ash roots alone, in this way getting a most perfect, hardy-rooted, semi-dwarf tree. Root-grafted in this way, of course there will be no Mt. Ash suckers. By these means we cheapen the propagation of the Pear, and it will not be so expensive "to plant two trees in place of each one that blights." I might give many more best of reasons for this mode of propagating the Pear. If any one has objections, let us hear them.

Treatment of Window Plants.

I find so many ladies have tried to bloom plants in winter and failed, that if you will permit me I will give a few hints to those interested. First, then, the greatest cause of failure is trying to grow them in too warm a room; next, keeping them in too large pots and over-feeding them. Ladies having no green-houses should only grow those plants most hardy—such as Geraniums, Roses, Feverfew, Sweet Alyssum, Mignonette, and the blue Browallia, all beautiful, bright and constant bloomers.

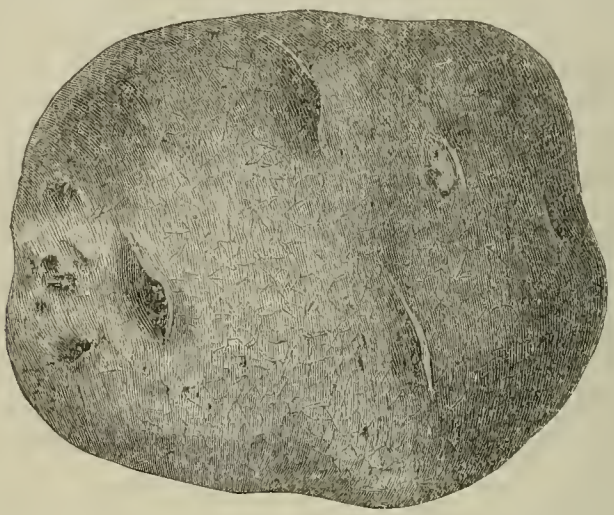
I take my Geraniums up in September; am careful not to break the roots; shake all the soil off, cut them down to within six inches of the root, pot them in as small a pot as the roots will allow—say three or four inch pots. My soil is turf mold, sand and a little well decayed manure. Feverfews do not need cutting, except to take out the old flower stalk. Sweet Alyssum, if it had been growing all summer, must be cut back. Leave them out doors as long as the weather will admit, then place them in a cool room. If you have an old table you do not care for, nail a four inch board around it to form a sink, and fill it with sand to set your pots in; it will keep the roots from drying, save watering them, and keep the water from dripping on the floor when you water them.

If you have a south window, that is just the thing; mine faces the east. I kept them in an upper hall window until I had a green house, and I had them look splendidly all winter. The hall is in the center of the house, and of course quite protected; but they had no fire. By keeping the plants I have named cool, but not allowing them to freeze, they will do well, (such has been my own experience), and they are easily cared for.—*Mrs. S. J. H., in Rural New Yorker.*

Peerless Potato.

By S. J. Parker, M. D., Ithaca, N. Y.

Ed. Pomologist and Gardener: — One of the most remarkable seed balls of the potato plant, was that which has given the Early Rose and the Peerless. I have requested Mr. Bresee, who lives in New England, to give a full account of how that potatoe ball was had by him. He has been so *unkind* as never to reply to my request. This silence of any originator casts, in my own mind, a great doubt over all the early history of a plant; as on more than one occasion, I have found a letter or two unanswered on a grape or plant, covered facts that would not bear investigation. We only say that our letters to Mr. Bresee are unanswered, which is very ungentlemanly in him, and we therefore cannot vouch for anything connected with him. By permission we give the following reduced cut of the Peerless. It is about one-third the average size as grown in 1871 at



Ithica, N. Y. It will be noticed that the eyes are hardly perceptible, that a wave-like eyebrow is on one side of the eyes. That the eyes at the left hand end are clustered very thickly and are very small; that the right hand end is very smooth as is the whole potatoe; and that there are minute cracks or rather crinkles of the skin. No one would notice this crinkling on the potatoe itself, they are so small, but they are characteristics of the Peerless. The potatoe is white, and in all my acquaintance with potatoes, I know of no variety with such a perfect sample of *small eyes and beautiful shape.* They are slightly flattened, as seen in the engraving, which represents the potatoe as longer than broad, and lying on one of its sides. A few grumble-growlers in Connecticut and elsewhere, represent the Peerless as "soggy and flavorless." This as far as central New York is concerned is absolutely false. But such "grumble-grumble growlers" are found in every plant, tomato, grape vine, or flower in existence. One has only to seed the Heavenly-manna-dew-of-Aladni's-fairy-Aratia's-cup-Grape, and lo! up comes the giant hydra, Hypo-drochondria, with a grumble-grumble growl; or at least, a few litle dogs wow-wow, at our heels. So that is to be dismissed.

The Peerless is remarkably prolific; and has its large and beautiful potatoes, in a thick cluster, in the center of the hill. All white potatoes are apt to cluster thus, and therefore need late hilling a little more than red ones, or deep growing potatoes. The Peerless needs a few minutes longer boiling than the Early Rose, when it becomes to a soft, mealy mass, delightful in flavor. In the trial before the Committee of the Massachusetts Horticultural Society, when boiled potatoes were presented for decision, this received the greatest number for *its quality* over all others.

We correct Mr. Bliss & Son's description by saying, "a late potatoe, skin clean, clear white, very much so; never russet, flesh white, mealy when boiled, grows large, and very productive."

We have at Ithica, New York, two potatoes, the Peerless and the Danby Excelsior. Whether the Danby Excelsior is the same as that of other persons I will not say. But this is certain, the Danby Excelsior is with deeper eyes, has no crinkles on the skin, yet so closely resembles the Peerless, that even those here who have raised both, cannot tell with absolute certainty, the one from the other, when mixed in a box or barrel. The Danby Excelsior is three weeks earlier than the Peerless, and they differ widely in the leaves and vines. Partisans claim *the best* for each. And if this is the case, it is easy for similar seedlings to be sold, and the unfavorable report of certain croakers to be correct, as they have not the genuine article. I am sure I want no better potato than the Peerless. The Danby Excelsior has thousands of potato seed balls, and has crowds of white seedlings. It is remarkable for that. Both are widely disseminated in this vicinity. But the Peerless is the neatest and the best, in my opinion, and can be had for seed.

Seeds for the Garden—Vitality—How to Test.

By W. H. W., Hartford Co., Conn.

Ed. Pomologist and Gardener:—We have shown that it is important to have seeds true to kind, and pure; yet with this precaution the crop may fail from the seed being unsound from some particular, either in growing, preserving, or otherwise. All failures of seed to grow and produce the desired variety or quality are occasions of much loss in various ways, and mortification. You purchase your seed of the dealer, and if it fails to come up you have no redress, as would be the case were it not true to kind, for there is no proof against the vitality being injured after you became possessed of it. The most positive and safe way is to test all seeds by sprouting previous to sowing, yet many seeds will show by their looks, or by sinking or otherwise in water, whether good or otherwise. Take some damp moss or moist, loose dirt, and intermix a certified number of seeds; place it in a warm location where the rays of the sun will fall on it a portion or all of the day, and in a few days it may be determined what proportion have germinated. Seeds may germinate and yet not have sufficient of the vital principle to produce a strong, healthy plant; here is another source of disappointment, which can scarcely be guarded against, unless we use the most observant care in trying them; Strong, healthy seed will throw out shoots rapidly, with a strong, healthy look, while those less strong will grow with correspondingly less vigor. Seeds may germinate in a hot-bed, in moss or soil in a warm room, and yet not in the open ground, the soil being too cold, or there being so little of the vital principle in the seed that a greater degree of heat is required to warm it into life. All seeds require a certain degree of temperature in order to germinate; if the soil does not supply this the seed lies dormant till the soil attains the requisite temperature, or else the seed rots! Different varieties of seeds, or seeds of different classes of plants, germinate at different temperatures, so that in planting it is important to know the requisite temperature of the various kinds we would plant. Johnson, in his "How Crops Grow," says: "A *certain range of warmth* is essential to the sprouting of a seed." He gives the lowest temperature of the pea as 44.5 degrees, and most rapid germination at 84 degrees. Corn, lowest 48 degrees, most rapid 93 degrees. Squash, lowest 54 degrees, most rapid 93 degrees, and for all agricultural plants cultivated in New England, a range of temperature of from 55 to 90 degrees is adopted for healthy and speedy germination.

Children and Flowers.—"It is as natural for children to love flowers as it is for them to breathe and delight in frolicsome sports and bright sunshine. Every man of an observing mind must have noticed this characteristic and beautiful trait of childhood. If any one for a moment doubts this inborn love of flowers so frequently displayed by children, let him carry a fine boquet by a group of them while at play, and see how quickly their attention will be arrested. Notice how they will pause in their sports, and how eagerly they will eye the treasure in your possession."

The Pear and its Culture--in Three Numbers--No. 2.

By the Corresponding Editor.

Cion and Stock.—Adaptation of cion and stock at first view of this subject, one might be led to believe that a Pear cion worked upon a Pear stock would, if rightly performed, be uniformly successful. Yet this is not the case; for, although they are of the same species, they are not of the same variety, and must consequently differ in their physical construction. The cells are not always of the same size in the stock and cion, nor of precisely the same shape, consequently the intersticial membrane, which holds the cells in position, and along which the sap flows, cannot correspond in many instances. The union between the two, therefore, is imperfect, producing an unhealthy tree. This is more especially the case where the cion and the stock are of a different species, as the Pear and the Quince, the Pear and the Hawthorn, or the Pear and the Mountain Ash. We apprehend that in this dissimilarity of cells lies the reason why budding succeeds better than grafting of the pear, even upon its own roots, and more particularly so when grafted upon the Quince. In budding, which can be done only when the bark slips freely from the stock, there is no violence done either to the wood or the bark, the sap passing freely between them before adhesion takes place for the winter. The same reason holds good in budding being more successful in all kinds of stone fruits over grafting. Many difficulties on the subject of propagation are accounted for by understanding the cell system.

Of Cultivation.—Under the head of cultivation we mean both cultivation of the ground and pruning of the tree. The amount of cultivation necessary to give to Pear orchards, depends, in a very great degree, upon the kind of land on which they are planted, and the roots upon which the trees are worked. Where the land is light and much inclined to sand, thorough cultivation is necessary to insure fine crops of fruit and healthy condition of the trees, especially when worked upon the Pear root. If worked upon the Quince root and standing upon clay lands, they also require good cultivation to produce good results — but if, on the contrary, they stand upon deep, rich alluvial lands, such as river bottoms, then, instead of high cultivation, or even tolerable cultivation, everything should be done to hold them in check; and to prevent as far as possible, a too luxuriant growth of young and sappy wood, withhold the plow after the trees comes into bearing. Sow to clover, root prune, if necessary. Prune out only where the limbs are chafing each other; and if, after all this, the trees still make unusual growth, then resort to the knife and use it with an unsparing hand. Prune *back*, instead of pruning *out;* shorten in branches, and thus check the luxuriant extension of the branches. This shortening *in*, should be done from and after mid-summer, to secure the desired results.

In regard to pruning the trees, we would say that wherever the land is well adapted to a healthy growth of wood, the tops should be so pruned as to give the root a sufficient preponderance to furnish sap enough to make a due proportion of new wood, besides furnishing a sufficient quantity to make a full crop of fine fruit. If the top is left unpruned altogether, the root and the top will keep pace with each other, and the fruit, after a few years, will be of quite inferior quality. If we simply wished to grow wood, there would be but little necessity for pruning; but as we wish to grow fruit in addition, we must give the root sufficent preponderance for that purpose.

The Peter Wylie Grape, No. 1—Its Parentage.

A. P. Wylie, M. D. of South Carolina, who has spent the best part of a lifetime with experimenting in hybridizing the grape, thus writes to the *Rural Carolinian* of the above named grape — one of his hybrids — Peter Wylie No. 1:

Parentage. { *Female—Halifax and Foreign, No.* 1. / *Male—Delaware and Foreign, No.* 8. } *No.* 1.

The first is an oblong blue grape, the latter a dark red grape.

This hybrid bore, when three years old, for the first time in 1867. In the spring of 1868 it was almost destroyed by cattle, so that I had to re-instate it from cuttings. It was one of the most rapid and vigorous growers of about fifty of the same cross in the same nurs

ery row. I have now several fine varieties just coming into bearing, one (the oldest) of which bore a heavy crop this season.

The vine is one of the clearest from mildew and rot, entirely native, in appearance vigorous and short-jointed; holds its leaves late; is perfectly green now (October 1st).

This summer was very unfavorable in this region for the grape; the constant showers in June, with hot days and cold nights, caused most of the common kinds to rot: the Herbemont and Lenoir with me all rotted, not even leaving one full bunch, while only a few bunches of this on the most exposed parts of the vine rotted.

Fruit, (medium from four to six-eighths of an inch in diameter;) bunches, small or medium, (between the size of Catawba and Delaware;) color, when about ripe, greenish; when perfectly ripe, a rich, yellow, transparent color; sweet, juicy, but few seeds, only a trace of pulp, and to my taste of a decided Frontignac flavor. I will venture to say, that in sweetness and rich Frontignac flavor, it has no equal in America, in out-door culture.

It ripens among the very first, hence it was impossible to save perfect specimens for the late American Pomological meeting at Richmond, but still the committee, composed of the first pomologists of our country, spoke in the highest terms of it. I have noticed that after hanging ripe a long time on the vine, it loses almost all its musk or Frontignac flavor, but none of its sweetness. I think it would make a fine raisin.

Growth of Pines.

During a recent visit to Lincoln county, we saw in the north-eastern part of Alna and in that portion of Whitefield adjoining it, quite extensive tracts of splendid pine woods, the trees standing very thick, and running up straight and tall. There were several lots of from fifteen to twenty-five acres in extent, belonging to different parties, and from some of these considerable quantities of timber are now being cut. Years ago the land upon which this pine growth is now standing was covered with a growth of white and red oak, which was cut off for staves. These were manufactured, sold in Wiscasset, shipped to the West Indies and brought back filled with molasses. Nearly all the large oaks along the coast were used for this purpose, and the ground is now producing a growth of pines. Mr. David C. Pottle, of Alna, informs us that fifty years ago his father, while gathering oak timber for staves, drove his oxen and sled over the tops of small pines that are now forty, fifty and sixty feet high, and that will scale from four hundred to one thousand feet of lumber. Some of these trees are now two feet in diameter at the ground, the average being eighteen inches. The profits of these trees have been as good as money at ten per cent interest, and yet our farmers fail to grow forest or timber trees, thinking they and their children will not get paid for the trouble. Behold these facts, and let some of your waste land grow up to trees for your children's benefit and profit, if not for your own.—*Maine Farmer.*

Wier's Codling Moth Trap.--Reply to Dr. Weed.

By D. B. Wier, Lacon, Ill.

Ed. Pomologist and Gardener:—Fair criticism is a jewel, and often very valuable in bringing out obscure points in controversy, but I think Dr. Weed has criticised me rather unfairly, in fact has not unmildly disputed my word. I have always made it a rule when writing on entomological subjects, to be certain of the facts before I committed them as such to writing, and I am very sure that there is not one assertion made in my natural history of the Codling Moth in the December number of the Pomologist, but what will be found correct by every one who investigates its history and habits as thoroughly and perseveringly as I have done. Besides they agree in every particular, save one, with the conclusions of all our best practical entomologists. No one except myself, I believe, has asserted the belief in a partial third brood in the same season.

Now to answer Dr. Weed, all who have studied this insect through all its changes know that the first brood of moths is not very numerous, and it would not be very strange that the moths should miss one in a dozen trees in a large orchard, there may have been no eggs laid in the apples on the four trees; we hardly think we were *dolts* enough to place

worm traps on trees that had no apples on! A thorough examination of the subject, has never shown me an instance where the larvæ of the Codling Moth of the first brood spun up, on, or quite near the ground. I don't say one never did, but I will say I do not believe one ever did. The larvæ of the second brood search for shelter on or near the ground, *in the orchard.* When in a house I have found the great majority of them to seek the highest shelter in the house. As for the less work to open and examine the shingle traps than the cloth bands, that *fact* was based on the results of long continued, practical experiments, and I believe that my arrangements and fastenings of the cloth bandages were speedier and more economical than any Dr. Weed ever dreamed of. I had no tacks to pull out or drive in, but fastened them quickly and securely in place by a double spring hook; and further, I had kept them in place by almost every conceivable device before I invented the hook. One year ago I was just as firmly wedded to cloth bands as being *the* thing as Dr. Weed can be to-day, as those who heard my lecture last winter can testify, and *know* that I stated the *exact* truth when I say that the shingle trap is the more speedy of the two. As for the cost of the two kinds of traps, that don't amount to a row of crooked pins, either of them costing so little that the point need not be taken into consideration at all. I think I make the comparative cost of the two plain enough and truthful enough.

Dr. Weed says, "Will he tell us how he *knows* the moths of the first brood pair at once and commence to lay her eggs, etc., if I had never seen but one moth flying loose in the orchard in day light." I hope the Dr. asks for information, and in answer I would say, that I have bred hundreds of moths from the worm, in a very great number of ways and conditions, and arrived at the fact by the aid of my own proper eye sight, my experiments have taken a wider range. I have gathered the worms early in autumn, in autumn, late in autumn, and at different times during the winter, taken them from apples in February, placed them under different conditions, out of doors and in the house, watched their transformations and noted them carefully, and by this means learned whatI have written, and am pleased to say that my facts agree with *all* who have given the matter close attention, my friend Dr. Weed to the contrary notwithstanding. I believe there is no double brooded small insect whose natural history is better known than that of the Codling Moth. There is not a link in the chain missing, and I am happy to say that Dr. Weed has done much good work in calling the attention of orchardists to it, giving a *good* plan for its destruction and arriving at some facts in its natural history in advance of professional entomologists.

Pruning for Early Grapes and Luscious Fruit.

By Dr. Geo. Warne, Independence, Iowa.

Ed. Pomologist and Gardener:—A few words about grapes in Iowa may not be out of order. The fall of 1871 will long be noted for its extensive crops of this luscious fruit. In this section the crop was splendid and the yield enormous. The Concords predominated, and in many cases were most splendid fruit. There were many other varieties raised, but this one being considered the most hardy, has been the most largely planted. I have fruited for the first time the Iona, and Roger's Hybrids Nos. 1, 3, 4, 5, 9. Nos. 4 and 5 are splendid grapes, No. 4 excelling the Concord in size and flavor, and in my opinion is bound to supersede the Concord. No. 5 is the most luscious grape I ever tasted, of a light wine color, and ripens the earliest of all. No. 9 ripens later, and has a peculiar flavor of its own, but is really fine. The Iona is a fine grape but it has not succeeded well with me. I at one time had twenty-two vines of this variety, and now have only two. The birds have made terrible havoc with grapes this year, particularly the Brown Thrasher and the Oriole. The first grape attacked was Roger's Hybrid No. 5, then the Delawares, and then the Ionas, and then Concords and Dianas. These birds are splendid judges of good grapes, and they go for them in earnest. Heretofore I have not allowed any one to kill birds on my premises, but this year they were so very destructive I had to exterminate them in order to save my crop.

We often have inquiries as to the best grape to raise, and if it is a farmer who makes the inquiry knowing that he has large piles of straw to sell and to waste or burn up and none to cover grapes with, I say raise the Clinton and Concord and run them up a tree. But in the catalogue as my experience goes, give Roger's Hybrid first, then Iona, then Delaware, then Diana and Catawba, and lastly Concord and Clinton. Now I don't want any one to adopt my say-so as to varieties, let him experiment himself, and ten years will bring him over to my views. But the greatest difference that I have noticed the past year has been the manner of pruning vines. We have some rather extensive *garden* culturists here that spend a large amount of labor on their vines in keeping off all the laterals and extra shoots—being anxious to expose the fruit to the sun to have it ripen, and it looks fine too, but my mode is different. In the fall I trim my grape vines as I want them before I cover them. I do no summer pruning; I let the vine grow as it will, only keep them on the wires, and the result is a dense mass of foliage, and the fruit is all under cover of the vines. The sun can only penetrate to the fruit morning and evening, and what is the result? All of my grapes grown under this mass of vines were *sweet, rich and juicy*, and ripened evenly, while those on the trimmed principle were exposed to the sun, were longer in ripening and were not evenly colored, and were invariably tart or sour. I have come to this conclusion: that nature knows how to grow grapes and grape vines better than I do, and I let her do it. If the leaves are the lungs of the vine, two leaves make more lungs than one leaf, and consequently is more healthy. In another point of view my plan is the best, because all of this extra growth is cut off in the fall, and all the labor of the summer in pruning is so much labor lost, or money thrown away. I claim to have raised the best, sweetest, most luscious Concords in this section, and that is my treatment. I don't claim this being according to the books, but that makes no difference to me. I believe that some authors on this subject couldn't tell a grape vine from a sweet potato, and they have issued large books on the culture of the vine. Now Mr. Editor, if you should happen to come up in these diggings next fall, just call and look over my little garden of grapes. My varieties are not many; I had only thirteen kinds on exhibition at our county fair last fall, and they were all raised on my plan.

Notes on the Contents of the Pomologist for January, 1872.

By F. R. Elliott, Cleveland, Ohio.

Ed. Pomologist and Gardener:—I rejoice at the appearance of the January number of the Pomologist, and while so doing, regret the disappearance of the *Journal of Horticulture*, published the past three years at Boston. But the world moves and its tide strides westward, opening new fields, developing old and suggesting new theories and practices. The child grows, it takes from its parent certain hints and principles, but its field of operations being larger, and its youthful energies greater, it follows in horticulture as in manhood, that without appliances of concentrated knowledge in support of whatever life principle may be embraced, the old must give way to the new. It is this want of understanding of life principles developed in extent that leads publishers to imagine that Boston and New York (great centres of commercial values) are the great centres of horticultural knowledge. The exhibit of the American Institute Club for years past, has shown that all there engaged, are, and have been, men with each an axe to grind, or if none of his own ready, to minister at a price to any Charlaton that would pay. The "Daisy Eyebright" writer of the East is one entirely void of practical knowledge. Every line made up by that writer is a "packed line." Not a single journal emanating from New Yor city to-day, has in it, aside from its western correspondence, a single writer whose brains can grasp our great country or who can see aught of values outside of the New York, Boston or Philadelphia

MARKETS.

We of the West know that to that market we only minister and serve our ultimate end, in that we grow fruits and supply their exuberant population, but we are not deceived by

any of their specious articles, and we do know that the West of to-day has more of practical knowledge than has ever been thought of by the snip snap editors of New York and Boston, whose rural life is embodied in a weekly visit to Central Park, the Common, or some little hundred by twenty foot commercial green house. But with all due deference to the East, I rejoice at the appearance of the POMOLOGIST and its array of correspondents and talented editorials, and in my rejoicing feel like inditing one or more sentences, relative to the effect and ideas which the said correspondents and editorial articles suggest to me as I read.

J. S. DOWNER.

I like this bringing forward of our leading men whose life-acts have always toned more to God-like tendency of man's life than to accumulation of this world's goods. The engraving of J. S. Downer's face is, perhaps in outline, all correct, but far from expressing the whole-souled goodness that ever beams with a smile upon him. I have known him nearly thirty years, and your comments, short and appropriate, only tell a small item from his many characteristics of value. Calm and decisive, yet with respect does he, after careful study, observation and thought, express an opinion, but from that expression relative to varieties of fruit, tree or shrub suited to the soil, climate and wants of the people consonant to his acquaintance, no exception is ever taken. Your Corresponding Editor gives correct, but only a meagre list of Mr. Downer's labors, for while in his strawberry productions he has been more than ordinarily successful, owing to his continuous and persistent labors and experiments yet his works in the production of improved varieties of the persimmon, in his love of, and growth from seed, of flowering plants, such as the magnolia, etc., in his careful analysis of fruits originated by others and offered the public, are fully equal or above in value those of his strawberry productions.

FRUITS HOW FORMED, ETC.

I suppose all is new to many readers, but as it is all in the books I must and do ask, why we should in our journals continuously have a reprint, varied only by words. If a writer cannot grasp any *new* matter, let him then simply tell the reader or student where to obtain knowledge. It certainly is far more creditable to him, and if he has capacity to prepare a complete work surpassing others, then to him, do others likewise accord credit in their references.

THE CHERRY CROP NEXT YEAR.

I like those notes of Terry, for they touch the thing practical. If he will permit me, I will say that all this matter of bud killing is in a measure governed by the last seasons growth, supply of moisture and heat. Many a tree develops itself early, and the early drouths render its fruit buds imperfect. So a tree which naturally matures its buds later in some seasons loses vitality, and in others retains it. This accounts for his Belle Magnifique this year. The maturing of the bud is predicated, on the temperature and moisture from its first formation to its perfection, occupying about thirty days, as with the ripening of the grape, its perfection and ripening depend on heat and moisture during its formation of seed.

CALDWALDER'S GOLDEN APPLE.

I like your Associate Editor for his enthusiasm, but I can't endorse his discretion. I acknowledge his theoretical and impulsive views, while at the same time my life observation shows me that he is as often in error as in truth. If this apple has been sent out, if the dealer is bound to sell and distribute of it, then the record is good and creditable. But if by this notice a man is to gain profit and notoriety by sending out, profitably, trees to experimental or noviciate orchardists, of which no reliable fruit men have a knowledge, then I say he is doing just what J. S. Downer would never do.

THE CHERRY STOCKS, ETC.

I note the remarks of B. A. Mathews, and on this have a word to say, viz: Put your Morello, Early Richmond, etc., all on Mahaleb stocks if you want early maturity and vigor. The hardihood is in them, of itself. All the Dukes are also

good on Mahaleb, but the sweet cherries for the West must be grown on Seedling Morello stocks. So grown, their first year will be about two and a-half feet high, with branches from within four inches of the bud. Root prune these in November; after the first season's growth, leave them to grow. The second season, root prune again in November; and transplant to the orchard as soon in spring as frost will admit.

THE PEAR AND ITS CULTURE.

I must take exception to your talented and careful corresponding editor's remarks as to the soil suited to the Pear. He cites New Jersey, Long Island and California as sandy loam instances, whereon the Pear is especially a success. Now, please let me ask him to point out such locations, and if they are not based on deep, strong, heavy loams, I will accord him all credit. Again, let me say to him that some of the oldest Pear trees, healthy as known in the States, are situate in the clay, shady soils of Ohio, the deep loams of Michigan, the heavy lands of St. Genevieve, in Missouri; and so, touching the whole matter, I don't believe he or I, or anyone else as yet knows aught of certainty wherefrom to advise the planter. Only let us all join in advice to plant pears, whatever soil may be at hand.

THE PEAR ON MOUNTAIN ASH.

Robert Douglass, as always, is here with his good, reasonable common sense, and while he accords to the Mountain Ash a value as stock for the pear, it behooves him and all of us who so advise, to say what varieties do so succeed. I note *Bune Amaulis panachee, Doyenne Sieulle*, as two that for twenty years have grown and fruited well, grown on Mountain Ash stock.

GROWING GRAPES ON TREES, ETC.

Our worthy but eccentric friend, Prof. Turner, of Illinois, some years since started the slitting and bark peeling item, and then he came out on the Elm tree as the great feature of grape growing. I know no man of more capacity than the Professor, and since the death of Wm. R. Prince, I know no man who likes better (by some apparent simple system of culture, but egregiously erroneous,) than does he, to bring out men. In a four years' constant study of the vine and its training, relative to disease, etc., it came to my lot to visit, here, there and elsewhere, vines growing on trees, long trellises, etc., etc., in some four different Western States. My conclusion was, that no exemption from disease, no additional hardihood, was obtained, while the size of bunch and berry and the quality of fruit were reduced.

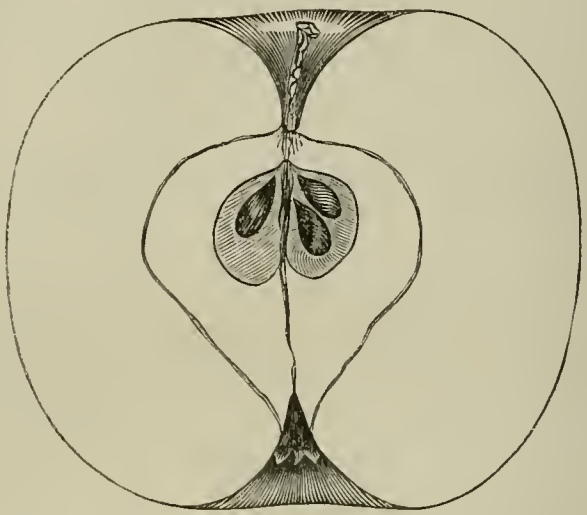
The Benoni--Its Peculiar Qualities.--Porter.

By Dr. James Weed. Muscatine.

Ed. Pomologist and Gardener:—I began propagating the Benoni about thirty years ago from one tree, the only summer apple with a small list of varieties received from Ohio. Unexpected difficulties and delay in getting a general stock of varieties from the East, compelled me to propagate it extensively; although as it was new to me and I could only find a brief and common-place description of it in Kenrick's Orchardist, I had great apprehensions that it would prove to be an indifferent or worthless apple.

About the time I commenced growing nursery trees in Iowa, root-grafting was much praised at the East. My first experience in this method was with Alexander, Baldwin, Benoni, Danvers' Winter Sweet, Newtown Spitzenburgh, Red Sweet Pearmain, and Yellow Newtown Pippin. Soon complaints came from all parts of the West of *bark-bursting* in root-grafted trees. I found Alexander and Benoni entirely exempt from this evil, while the others were more or less damaged—Yellow Newtown Pippin and Baldwin so badly as to preclude their profitable culture by this mode. Benoni was remarkable in its habit of growth, forming uniformly straight, nice, young trees, and for several years all my root-grafts were mostly of this variety, with the purpose of double-working standard high with other sorts. Some were thus grafted, but when it gave evidence of being the best apple in the orchard the purpose was relinquished, and this was an additional reason for the great number of Benoni trees disseminated in this region.

When the trees had attained to bearing size one was removed to the orchard one half mile from the house. The second season after transplanting this tree bore four hundred and thirty apples, which were picked when of less than half size, as sneaking fruit-thieves would surely take them if left on the tree. These immature apples showed a remarkable disposition to ripen, coloring finely with a tolerably good flavor, and remained sound through September, though picked in July. A year or two later the whole crop, amounting to two barrels, was picked in July and put in the cellar under lock and key. During the next ten days I thought of my first store of fruit occasionally, but being busy, an examination was deferred, until at length they were forgotten altogether. Three or four weeks had passed when I was very much surprised to find every apple sound and of most excellent quality. Some of these were sent by a friend to other friends in Connecticut, and though they were two weeks *en route*, reached them in good condition.



Until within four or five years of the present time it was my practice to pick my Benoni apples from the 1st to the 10th of August, and dispose of them as they ripened up to the middle or last of September, and I realized about as much profit from three or four hundred of these trees as from the rest of my orchard of several thousands. The last few years I have left them to ripen mostly upon the trees, by which their general character for size is much improved, but their keeping quality is greatly impaired by bruises received in falling from the trees. It ripens in succession through a considerable period of time, I should say from the 20th of July to the 1st of September, when left upon the tree, and for profit, as a distant market fruit, it should be gathered by weekly pickings, commencing the 20th of July, selecting each time such fruits as show indications of approaching maturity. By this means the trees would be much relieved of the effects of over-bearing, and might thus become annual bearers. A part of my trees bear one year and part the next, though all were originally from one tree—although they are strictly alternate bearers, as probably all trees must be that produce such immense crops.

If a Red June apple is picked when its exposed side is dull red and the shaded side green, it will ripen in the house, but the red side will be dingy red and the other dead green, and the flavor will be insipid, while if a Benoni is housed when dull stripes appear on a green surface, it will ripen up with crimson stripes on golden yellow ground, and with excellent flavor and juiciness, keeping thus without any tendency to become dry and mealy. This quality of ripening perfectly in the house, like some of our best pears, belongs, so far as I know, to no other summer apple; and in connection with the fact that when ripened on the tree it is surpassed by no other apple for the table or kitchen,

with its established character for vigor, hardiness and productiveness, has induced me to plant more and more largely of it in every succeeding plantation I have made. The trees have long, slender branches, which bend like a willow under its immense loads of fruit, but seldom or never break, and though inclined to form acute angular forks at the junction of the larger branches, they are not apt to split down like Yellow Bellflower and some other kinds. It has a large amount of dark green foliage, and if leaves are the lungs of plants, the Benoni can breathe and ærate its juices with the best of them.

Its young fruit is very persistent and often after a high wind I have often seen the ground thickly strewn with little apples under the trees of other kinds, when scarcely a dozen could be found under a Benoni. With all the great number of Benoni trees I have had of different ages, from the yearling graft to the mature orchard tree, during all the time I have grown trees in Iowa, I do not know that one has ever been injured by our cold winters. It is not an early bearer like Keswick Codlin and Kirkbridge White, nor is it late in first fruiting like Northern Spy, but when the trees have attained to a reasonable bearing size, they have uniformly borne profusely in alternate years.

I am inclined to think the Porter the best apple we have ripening in succession, after Benoni. Its large size, smooth skin and fine yellow color, with excellent qualities for the table or kitchen, commend it very strongly for amateur or market culture. The trees appear to be healthy, hardy and very productive, and it seems to be gaining rapidly in favor in many parts of the West.

How to Grow the Cauliflower.

Ed. P. & G.—I have been successful in raising Cauliflower, and as there appears to be a want of success—so far as I am acquainted—I will give you my method of cultivation. I sow my seed in the open air at the same time I do for cabbage. I am not anxious to raise hot bed plants, or even early plants, for I find they do not do as well in our long hot seasons as later ones. From the 20th to the 30th of May is early enough for our latitude and our deep, rich sandy soil. On the 10th of June, 1870, I spaded up a bed of the Wilson Strawberry, which had just yielded its last picking of fruit, burying the tops deep in the soil, and the same day set out the ground with Cauliflower. They done well, forming fine curd-like heads of fair size. Last season I set my plants on the 25th of May, and although the season was one of severe and continuous drouth, they done well, nearly all forming handsome heads, some of which were very large. One head cut short as it could be and closely trimmed weighed twenty-eight pounds. These plants were set between the rows of early potatoes. The potatoes were dug in June, then they had the ground all to themselves. I set the plants four feet apart each way and about one foot below the surface of the ground in rich soil with a liberal supply of ashes mixed through it. Stir the ground often, drawing the mellow soil around the plant. If the plants do well they will completely cover the ground. In the heat of summer I mulch with green grass or weeds—never water, but sometimes flood them well with soap suds. In this way I generally get very fine heads.—C. B., *Nauvoo, Ill.*

Liquid Grafting Wax.—I have found no better recipe for making liquid grafting wax than this: Melt one pound of common rosin over a gentle fire. Then add to it one ounce of beef tallow and stir it well. Take it from the fire and let cool down a little, and then mix with it a tablespoonful of spirits of turpentine, and after that about seven ounces of very strong alcohol (ninety-five per cent). The alcohol cools it down very rapidly and it may be necessary to put it on the fire again and stir it, till the whole is a homogeneous mass, similar to honey. When cold, it is ready for use. For putting on, a small brush is most convenient. Do not put it on too thick, that's of no use. About like a good coat of paint, being careful to cover all crevices. It will harden in a day or two, and then be of a whitish color, impervious to air or water. Be sure and get the best alcohol, as a poor article may spoil the whole. As the ingredients are very inflammable, you must be careful not get it too close to the fire. The flames might strike in and set the whole burning.

É. Von Oven, *Naperville, Illinois.*

New and Rare Plants.

Among the new and rare plants being introduced, and which may be considered valuable acquisitions, we have from that old and popular seedsman of Philadelphia—Henry Dreer, a Pure White Grape Myrtle and a New Dwarf Pomegranate, of which Mr. Dreer says:

"Pure White Crape Myrtle.—A seedling of the well-known pink and rose-colored *Lagerstræmia Indica.* It is of vigorous and symmetrical growth, and produces its pure white flowers in great abundance. This is a hardy plant in the Southern States, and with slight protection will stand out near Philadelphia, and at the north can be easily wintered in a cellar. It is a great acquisition."

PURE WHITE CRAPE MYRTLE.

NEW DWARF POMEGRANATE.

New Dwarf Pomegranate.—Originated from seed of the well known single *Punica Granatum.* It has a decided dwarf habit, the foliage is smaller and of a finer green than the old variety. In its beautiful foliage, symmetrical shape and the profusion of its bright scarlet flowers, with dwarf growth, it can be advantageously used as a bedding plant, or for pot culture, and from its hardiness, and the facility to keep the plants over winter, must become popular.

A New Geranium.—Messrs. Ellwanger & Barry, of Rochester, N. Y., introduce to the public a new bi-color Geranium—"Pride of Mount Hope," and of which they say: "This is a seedling of ours, and a cross between Beauty (Buist) and the well known Mrs. Pollock. Its foliage is large, of a brilliant yellow color, with a broad chocolate zone. Unlike all other Bronze Geraniums we have yet seen, this succeeds best *under the hottest sun.* Its highly colored leaves and vigorous habit, destine it we think, to become one of the most desirable and popular plants for borders and edgings."

All interested in Floriculture will find these new plants interesting acquisitions to their collections, and should not fail to have them.

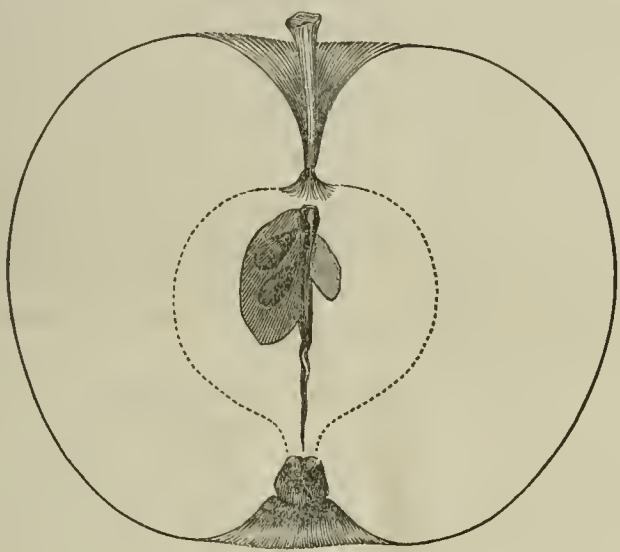
Pears Among Corn.—The Country Gentleman says that John Morse, of Cayuga, N. Y., has found of late years that he gets more pears and better ones, by keeping the ground cultivated instead of letting it run to grass. The corn crop proves one of the best for this purpose, as it represses the growth of weeds, and in this respect is better than potatoes. Lime has been found decidedly beneficial, being first slaked into powder, and then spread broadcast over the ground at the rate of over a hundred bushels per acre. His ground has been perfectly underdrained, and the result of his careful culture is, that his orchard of 3,000 trees yields an annual income of over $3,000.

What are Flowers, and why Regard Them?

"How they grow no man knows,
They spring, they bud, they blossom fresh and fair,
And deck the world with their rich pompous shows."

A small polished casket containing within itself the tender germ of a plant is dropped to the earth from the prolific capsule of its parent, where, vivified by the sun, it soon bursts its hard covering, thrusts its feeble root into the soil and erects to the light its slender stem; day after day and week after week, leaf is added above leaf, as its stem and branches elongate upwards and outwards; every new born leaf being made after one and the same model, till at last a bud appears, perhaps many such overspread the plant; in due time the day of its advent arrives, the morning sun bursts the swollen bud, whereupon a new form of leaves, of most exquisite workmanship, entirely unlike the green leaves that hitherto clothed the plant—of the most brilliant hue, and in the most regular manner—expand to our view and fill the air with their perfume. How common is this sight, and yet how wonderful!

So far as the cultivation of flowers is concerned, there has been in our day a vast improvement both in variety and magnificence over those cultivated a generation ago. All parts of the world have been explored to add new attractions to the green-house and flower border, where we have an example of universal brotherhood assembled from every nation under the heaven.—*Selected.*



The Stark Apple.

This apple, as we are told, originated in Western New York, and though brought Westward some years ago has not attracted much attention until recently. We believe Mr. M. L. Dunlap introduced it into Illinois, and first called attention to it. He speaks of it as being one of the most reliable winter apples—the tree a young and constant bearer, fruit large and showy and tree very hardy. Through the kindness of Mr. A. H. Gaston, of Illinois, we have been favored with a box of the fruit, and after a fair trial, in our estimation the Stark is a valuable apple. It eats well from the hand and for cooking at this season not excelled by any other. The fruit was on the tables at the late meeting of the Iowa State Horticultural Society, and so far as we know, was highly commended by those who tried it in comparison with some others of the old and favorite sorts. Verry Aldrich, an extensive orchardist at Arispee, Illinois, has been trying it top-grafted upon some of his

old trees and with such satisfaction that he writes: "I shall top-graft as many as I can of my poor bearers with the Stark. I have never seen so good a sort for top-grafting—making a fine top so quick."

Fruit large, slightly conical and angular; skin yellowish green, somewhat red, faintly striped, and specked with brown dots; basin medium; cavity narrow; stem short to long; flesh yellowish, rather coarse but breaking and juicy; acid to sub-acid, sprightly and rich. Season, late winter into spring. The Stark bears a striking resemblance to Willow Twig externally, but is very different in taste.

The Lady Apple--Does it Do Well in Our Climate?

Ed. Pomologist and Gardener. — Can you tell me if the Lady Apple does well in this climate, or is it only a fall apple here? I see it quoted in the New York market at $8, $18, and finally on the 20th of December last $25 per barrel, when other apples sold for from $3.50 to $4.50. I would like to ask you several other questions, and perhaps I ought to ask pardon for asking so many at one time. But I would like to avail myself of your experience and mature judgment, and you must forgive me for asking one more. What six varieties of winter apples would you plant in a commercial orchard, and in what proportion? ——— Can you furnish a few trees of Black's extra early peach and at what price? If you have none for sale where can they be obtained?—A. B. Castle, *Pleasant Hill, Mo.*

Remarks. — From what we know of the Lady Apple, the only difficulty in growing it in the West so as to meet the requirements of the market is, that in our rich soil the fruit is apt to grow too large and imperfect. It is a fancy apple and to command the fancy prices quoted in the Eastern markets, the fruit must be perfect to meet with favor as an ornament for the table. When grown of the proper size and color it always commands a high price in the Eastern markets, and is one of the most profitable sorts for the orchardist. The tree is said to be hardy, prolific, and to produce the finest fruit on rather poor soil. ——— For six best winter apples for your locality in starting a "commercial orchard," we should say Ben Davis, Wagener, Rawle's Jannette, Jonathan, Wine Sap and Willow Twig, or Stark — the latter of the two, if we knew it to be as good a tree and bearer as the Willow Twig, for it is a better apple. But as we know nothing of it except from hearsay, we do not feel like giving it preference yet over that good old sort, the Willow Twig. But for an orchard we should want both, and also Grimes' Golden and Fameuse. ——— Concerning Black's Peach, write the Associate Editor.

Sops of Wine.--Some of its Good Points.

Ed. P. & G.—I notice you had a cut in the December number of the Pomologist of the *Sops of Wine*, and remarked that, "until the last three or four years it has received no special attention in Iowa and the adjoining States." I think that is perhaps true, if we except the attention and notice it received at a meeting of the Alton Horticultural Society some six years since. At a regular meeting of that Society, held in Alton in the month of August, and I think six years since, I exhibited the fruit and called special attention to it as a market apple. Whatever its merits, it has become very popular with many as a profitable apple for market, and while some do not like it, yet many think highly of it for family use. It is an annual bearer, less subject to the attacks of insects or fungi than any other apple; of a tough skin, bearing carriage well. It should be thoroughly ripe before eaten. When it is mature it is a beautiful red, a sour apple, yet very mild. Your cut shows it too small. With me it is not a small apple, but from medium to large, and in fact large rather than medium. Pick them when in good shipping order, send them to a distant market, and they will carry better than any other apple I know of and be in good eating order, and far better than when they were first picked.

I suppose I have been instrumental in "resurrecting" the Sops of Wine, and believe I have done the public a good thing.—Jona Huggins, *Woodburn, Ill.*

A New Seedling Grape.--The "Orion."

By Calvin Bradley, Nauvoo, Ill.

The grape is one of the most grateful and delicious of all fruits, the most universally cultivated of all fruit-bearing plants, and at an early age yields in profusion greater than any other fruit. It is one of the most precious boons of nature to man. Everything in the grape vine is beautiful and noble. The delicately shaped leaf, the fragrant blossom, and the delicious grapes are always beautiful, always welcome. It finds a home in the deep recesses of the forest, it grows on the rocky hill side, and luxuriates in the fertile garden. It trails on the ground and climbs to the top of the tallest trees. By training it can be kept as small as a shrub, or made to cover a thousand feet. After many failures of the early vine growers in attempting to acclimatize the foreign varieties, the business has at last been started in the right direction. Labor, skill and science, aided by energy and wealth are embarked in the business. By planting the seed of choice varieties indigenous to the country, and by hybridizing, new and valuable varieties well adapted to our soil and climate are obtained. Such efforts must and will be crowned with success—will give us the grade we need for all purposes.

Acting under the influence of this belief, I have given some attention to the cultivation of seedlings, and have succeeded in raising a new variety that will be a most desirable acquisition to wine growers. This vine came from the seed in 1866. The first season it grew five feet high, requiring a stake. In the spring of 1867 I cut it down to two buds. They made a rampant growth, encroaching upon their neighbors. In the spring of 1868 I cut one of these canes down to two buds, leaving the other longer for bearing wood. It was now two years old and it produced eight bunches of grapes and made a fine growth of wood. In 1869 it matured forty-five (45) bunches of grapes, and a large amount of well ripened wood. In 1870 I let it have a little more bearing wood, and it gave me one hundred clusters of choice, well ripened grapes, a part of which were exhibited with the vine and leaf attached, at the State Fair at Keokuk, and left in the hands of Capt. James Mathews, of Knoxville. In 1871 it bore and ripened one hundred and twenty-five clusters, and made a large amount of ripe wood. It is now five years old, and has borne four crops of grapes. It is perfectly hardy and a most vigorous grower, and I think it may be called a *prolific bearer*. It ripens with the Concord, but remains on the vine as late as you wish, never splitting or the berries falling off. It is a medium size black grape, compact clusters, somewhat resembling the Clinton, but every way superior. It stands where it was planted, has never been disturbed, no root pruning, *no summer pruning*, and never a leaf taken from it after spring pruning. I made wine from it this fall, which I think is of good quality. The must by Oescheles scale showed 98, while the must of the Concord showed 68 at the same time. I have named it the "Orion," hoping and trusting it may form a bright star in the galaxy of new seedlings.

Dwarf Apples.—Mr. Albert Noyes writes to the Maine Farmer that twenty-two years ago he set out dwarf apple trees of the following varieties budded on the Paradice stock: Red Astrachan, Drap' d' Or' Early Margaret, or Bell's Early and Early Harvest; and on the Doucain stock, Duchess of Oldenburg and several other varieties. Most of them bore fruit the following year, and have continued to do so ever since. The Drap d' Or' Early Margaret, Early Harvest and Astrachan are uniform annual bearers. The Duchess of Oldenburgh, every other year produces a *very* heavy crop—the past season it yielded from four to five barrels. A very good way says Mr. N. is to plant dwarf apple trees alternately with the standards; as you then get fruit from the dwarfs immediately, while the standards are more tardy in coming into bearing, and they will not interfere with each other by their growth for twenty years certainly.

Mt. Vernon Pear.—The Horticulturist gives this new pear high praise for fine growth, productiveness, excellent flavor, and as a winter sort to follow the Lawrence—and gives the following list of sorts to precede it and to form with it a regular succession from summer to mid-winter, viz: Bartlett, Seckel, Beurre d'Anjou, Lawrence, and Mt. Vernon

Apples will bear Freezing.

Ed. P. & G.—Wm. P. Lippincott misquotes me in December number. I asked why apples could endure ten degrees of frost without injury, and be ruined by fourteen degrees?

My object in this question was to call especial attention to the fact that well organized and perfectly ripened apples could be thoroughly and solidly frozen at a temperature ten degrees below freezing, and that when apparently in the same condition in respect to congelation, a temperature four degrees lower destroyed their vitality indiscriminately. The feeble and imperfectly ripened ones were destroyed by ten degrees of frost in the first instance, and none could be saved by gradual thawing in cold water after fourteen degrees on the second occasion. It is evident that the greater cold was the patent agent of destruction, and it is important that cultivators should recognize the fact. It is said frozen apples will thaw at twenty-six degrees, and if so, undoubtedly they will not freeze in a temperature above twenty-six degrees; and consequently, twenty-two degrees, which is ten degrees below the freezing point of water is only four degrees below the freezing point of apples. Some apples were again frozen upon the trees the past autumn, and without injury.

Our peach buds and a part of those of the Early Richmond cherry were killed by ten degrees below zero early in the present winter, and if we remember rightly peaches were mostly killed a few winters ago about St. Louis by seven or eight degrees below. This was probably owing to the buds in that mild climate being in a similar condition to that of the imperfect apples, not well ripened, or in their most perfect hybernating condition.—James Weed, *Muscatine, Iowa.*

Black Knot on Plum Trees.--Cause and Remedy.

Upon this subject, Mark W. Stevens, of Sloanesville, N. Y., writes to the New York Farmers' Club: "My theory of the cause of this disease is, that the disease is caused by an excess of sap in the branches at a time when the growth of wood and leaves do not absorb it, and when the leaves do not protect the branches from the sun. The ground at that season is usually saturated with water and the heat often extreme; they, acting together, produce a flow of sap which cannot be absorbed by the young leaves, and is therefore retained in the young wood, where fermentation takes place, caused by the sun's heat, and the result is the disease described.

The reasons for this opinion are these: The disease seldom occurs in the kinds of plums which have an early and luxuriant growth of leaves, such as the Princess Imperial, Gage, Jefferson, Orange-plume, and Yellow Gage, but does appear on others growing alongside the above, and growing under precisely the same circumstances, such as Smiths Orleans, Damson and Red Gage, which have smaller and fewer leaves than the first mentioned. It seldom occurs upon trees root-grafted into the wild plum stock, which developes a small root compared with the top of the tree. It seldom occurs in trees that are making a good medium growth of wood; not too much or too near none at all. It does occur most frequently upon trees which stand in a moist, deep, dark and rich soil, and without a sod upon it; or in places where the winter snow drifts remain late in the spring, retarding the production of leaves until the spring is so far advanced that a few hot days hastens an excessive flow of sap, for which the top of the tree is unprepared.

The only way to prevent the disease is to plant plums upon rather dry soil, of kinds least subject to the blight, and which kinds these are, almost every nurseryman of experience can name in a minute if he will. Mulch with chip manure, four inches deep, and four feet wide around each tree, in March or April, and if the soil is very deep and rich, then root-prune a little once in two years, in the fall, after the leaves have fallen.

Peach Buds in Southeastern Iowa.—Mr. G. B. Brackett, of Denmark, Lee county, writes us, February 6th: "We are having cold weather here—mercury 8 degrees below 0, for four mornings in succession. This morning, about three inches of snow. Peach buds nearly all killed."

Editor's Portfolio.

Annual Meeting of the State Horticultural Society.

The Iowa State Horticultural Society met in this city Monday evening January 15th. The attendance was very light from abroad as might have been expected, for a more inopportune appointment could scarcely have been made, because but very few of the dis-a nt members could reach the evening meeting, short of leaving home on the previous Saturday. The President, Prof. Mathews, delivered his annual address, which was listened to with marked attention. After a retrospective view of fruit growing in the State, the subjects of insects, blight, culture, protection and other topics of minor interest were ably presented. We should be pleased to present the address in full to the readers of the Pomologist, but with the crowd of other matter upon our columns from correspondents and advertising patrons we cannot consistently spare the space.

The show of fruits and wines was not very large, but nevertheless it included some specimens of special interest to those present, among which were the Stark and Lawver apples, of which we have heard so much within a few months past through the horticultural press. After a fair and impartial trial of these two apples, in competition with the Willow Twig, the committee were unanimous in according to the Stark superiority in flavor, whilst the Lawver was as heartily rejected. A seedling apple, or at least so claimed, from Mahaska county, excited a good deal of interest from its resemblance to the Baltimore. So much alike were the two when brought together and closely scrutinized, that they were thought at one time to be identical. But the question of their identity was finally left open for another season's trial. There is surely a remarkable likeness in the appearance of these two apples.

Samples of Concord and Catawba wines were upon the tables, said to be made from the pure juice — unadulterated with either sugar or water. In the flavor of the two we could not detect the slightest difference. A bottle of wine was also presented from Mrs. Kimball of Knoxville, made from the pure juice of the so-called Rogers' "No. 13," with the addition of three-fourths of a pound of sugar to the gallon. All who tasted this wine pronounced it very fine — possessing a peculiar aroma and rich flavor.

The everlasting apple and pear tree blight came up for a hearing; new theories were advanced only to be knocked "high and dry," for every speaker had a theory of his own, and as opposite as the two poles. Finally the very sensible conclusion was arrived at, that the more the question was discussed the worse it became "muddled."

Reports from the members of the *ad interim* committee went to show the great abundance of fruit the past year, and gave flattering assurance of the progress of horticulture in all sections of the State, fully verifying the words of the President in his annual address when he says: "It is a pleasure to know and feel that in all portions of our diversified soil and climate, so many are interesting themselves in the culture of fruits. That the manifestations in this direction are upon a sound and healthy increase there is no doubt; nor is it now denied by any, that take our State altogether, we are equal with most others in the staple pomological productions, the peach only excepted. * * * *
It is true that we have come up to this point through great tribulation. It seems to me when I look back upon the many and formidable obstacles and discouragements our fruit growers have had to contend with, that nothing short of the characteristic perseverance and pluck of the Iowa people would ever have brought them through the manifold besetments and drawbacks of incipient culture, and elevated them to the proud position they now occupy. They are veterans in the highest sense of the term, and while they claim no special immunities for the valuable services they have rendered, they will ever enjoy a happy consciousness of the lasting benefits they will have conferred upon succeeding generations."

The question of seedling stocks for working the finer varieties of the cherry was slightly touched. The speakers were about equally divided in their preferences between the Morello and Mahaleb. The impression has been, to some extent, that the Mahaleb is too tender for this climate, but we think there need be no further apprehension on that point in Central and Southern Iowa at least. Some speakers thought the Early Richmond worked upon Morello stock makes a more fruitful tree and comes into bearing earlier than if worked upon Mahaleb stock, but from what was said pro and con, we doubt whether there is much, if any difference between the merits of the two.

Apples, pears and small fruits received some attention. No recommendation was made, however, as to what to plant — a great oversight, we think, in the business of the society, for if a State Horticultural Society has any definite aim or object, it should be a complete list of fruits, and its annual revision for trial and general cultivation. If such is not the grand mission of our State Horticultural Society, we should like to know what is. It is what the people look for and expect from all over the State.

Offices for 1872.—Suel Foster, President; Benjamin Green, Vice-President; D. W. Adams, Secretary; David Leonard, Treasurer.

Directors.—1st District—E. H. Calkins, Des Moines County. 2d District—Mrs. Emily F. Ives, Wapello county. 3d District—A. E. Kretchmer, Montgomery county. 4th District—G. P. Wood, Cedar county. 5thDistrict—J. Doran, Linn county. 6th District—C. L. Watrous, Polk county. 7th District—J. T. Mott, Alamakee county. 8th District—S. D. Pierce, Wright county. 9th District—S. J. Comfort, Crawford county. 10th District—C. E. Whitney, Monona county.

Evergreen Screens--How to Grow and Best Trees.

In reply to "Inquirer" for information on growing live screens and the best trees or shrubs for the purpose, we will say that for trees, by all means use evergreen of some sort. The Buckthorn and Barberry make beautiful screens, but as they are deciduous plants they possess neither beauty or utility in winter. Hence we would recommend evergreens, and though dearest in the beginning, they are in the end the cheapest, most beautiful, perfect and satisfactory. For a tall, strong screen that will eventually serve the double purpose of wind screen and fence, the Norway Spruce, planted two feet apart in a straight line, is, in our mind, the best tree. For a low, dense screen, we should take the American Arbor-Vitæ; nothing is better, or will make a more perfect wall of green, whilst it is the cheapest of all the evergreens, of rapid growth, bears transplanting best of all, thrives in almost any situation and will stand pruning to suit the taste. To make a dense, perfect screen, use thrifty plants that have been two or three times transplanted, and ten to eighteen inches in height. Set in two parallel rows eighteen inches apart in rows in the following order:

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Started in this way and properly cared for, a most beautiful screen or wall of perpetual green four to five feet in height, and three to four feet at the base, may be raised in five years. The roots of this plant are numerous after two or three transplantings, and form a complete net work very near the surface. Hence the surface of the ground about the plant should never be disturbed in the least, or exposed to the sun. Mulch the ground with coarse manure and keep it so until the plants attain a growth that will shade the surface underneath, and even then a good dressing of coarse manure twice a year will greatly benefit the plants. We know from several year's trial that non-culture, with liberal mulching is of the greatest importance in growing evergreens of any kind. The roots must be kept cool and moist if we would have a vigorous and healthy growth. Nothing gives so much life and beauty to home in winter, as do lines of evergreens properly dispersed about the buildings.

The Scuppernong.—We see it stated that in Mobile county, Alabama, eighty-six gallons of pure juice was taken from two Scuppernong vines, twelve years old.

Northwestern Horticultural Association.

Ed. Pomologist and Gardener.—At a meeting of horticulturists at Madison, Wisconsin, on the ninth instant, after a full discussion as to the need of such an organization, it was resolved, on motion of D. B. Wier, to form a permanent organization, to be known as above. Its object being to encourage fruit growing and forest tree culture in the great Northwest, especially in the *new* Northwest, now being opened up by the North Pacific Railroad. A constitution and by-laws were adopted. The following gentlemen were elected as officers of the permanent organization :

President—Rev. G. W. Nunier, of Nunier, Tazewell county, Illinois.

Vice Presidents—O. S. Willey, Madison, Wisconsin; L. R. Scofield, Freeport, Illinois; J. S. Harris, La Crescent, Minnesota; James Mathews, Knoxville, Iowa.

Recording Secretary—F. S. Lawrence, Janesville, Wisconsin.

Corresponding Secretary—Mark Miller, Des Moines, Iowa.

Executive Committee—A. G. Tuttle, Baraboo, Wisconsin; D. B. Wier, Lacon, Illinois; Col. J. H. Stevens, Minneapolis, Minnesota.

Treasurer—L. Woodard, Marengo, Illinois.

The society is to hold regular biennial meetings. Membership fee, two dollars biennially. The next meeting will be at the call of the Executive Committee, and it is hoped all interested in Horticulture will help to make it a success by being present with their fruits. The society hopes to be able to hold a session at some central place the coming autumn, where all interested in Horticulture in the Northwest may meet together in council, compare notes and bring together all the fruits of value grown in the region, to unravel our nomenclature, and determine as far as may be, what is best to plant for fruit, and for the timber for future generations. The officers elect are men who are willing to work and have the means to make the association a success. An address is in preparation giving the objects of the society, which can be had by addressing either of the secretaries, President or other officers.—D. B. Wier, *Lacon, Illinois.*

(From the Wisconsin Daily State Journal.)

H. H. McAfee was designated to prepare an address to the people of the Northwest, setting forth the objects of the Society, and asking their co-operation to make it a means for the acquisition and dissemination of horticultural knowledge.

The energy and the enthusiasm displayed at this meeting augur success to the undertaking. The association starts out with a respectable working membership of prominent horticulturists, and as an aid to the planter in the new regions being occupied it cannot help but be useful if its affairs are well administered, and of that the character of the men put at the helm assures us. The association purposes working by biennial joint exhibitions held upon years alternate with the exhibitions of the American Pomological Society, and also by holding meetings for addresses and discussions, and in its work a prominent feature will be the interest of forestry, the encouragement of timber culture both upon the pine forests now so rapidly being used up and upon the prairie regions, where trees are greatly needed as an economical resource and as an ameliorating agency for the climate. Your reporter is instructed to state that all persons who desire to aid the workings of this association can become members by remitting $2 to L. Woodard, Marengo, Ill., which makes them members for two years, and entitles them to future publications of the society.

The Walbridge and Cogswell Apples.

Ed. Pomologist and Gardener.—We mail you to-day samples of the Walbridge apple and trust they will reach you safely. They were borne on one of the original trees planted by the introducer of that variety, Mr. Daniel Pound, of Prairie du Sac, Wisconsin—the trees now owned by Mr. Tabor. The first trees set there were sold by Mr. Pound about nineteen years since, and from them have been propagated all the true Walbridge there is known.

We have good evidence that the Walbridge and Cogswell are *not* identical, as some have

claimed and as we supposed. Downing, in "FRUITS AND FRUIT TREES OF AMERICA," describes Cogswell as being rich yellow, with red stripes, while the Walbridge, as you will see by the samples I send you, is greenish white with bright red stripes. He also says young shoots are downy, while, if anything is positive, it is the fact that the Walbridge shoots are *very* downy, as you may see from the two little cuts I send with the apples. Mr. J. S. Stickney, President of the Wisconsin Horticultural Society, writes us that he has sample leaves and twigs of Cogswell from Ellwanger & Barry, Rochester, New York, and thinks that they are not identical.

Mr. Greenman, of Greenman, McGraw & Day, Whitewater, Wisconsin, was here yesterday and says he has sample apples of Cogswell, from Hooker of Rochester, New York, and he says it is not the same as our Walbridge. Trees of the Walbridge, first set in Sauk county, Wisconsin, are valued at $100 each, being reliable and satisfactory annual bearers. You will find the samples I send you rather green yet. They will be best in May.

As a nursery tree the Walbridge is all that can be desired—being the admiration of all who see it. As to hardiness the test it has had ought to satisfy all. The cions I send you have been exposed to 30° below zero—cold that has killed our Flemish Beauty Pears. Yet our Walbridge are as bright as ever.—A. L. HATCH, *Ithaca, Wisconsin, Dec. 12th*, 1871.

REMARKS.—We find the Walbridge a very handsome apple, and from its condition now (February 10th) think it must be one of the best of keepers. The specimens are apparently as plump and sound to-day as when taken from the trees. When in eating condition we shall try it and say what we think of it.

How Shall I Prune?

ED. POMOLOGIST AND GARDENER.—I have but little experience in fruit culture. In dwarf fruit none; but have confidence in your judgment. In the spring of 1870 I planted apple and cherry trees. In the summer of 1870 they made but little growth. This last summer, all made rapid growth, say two feet and upward. I hoe them as I do my garden vegetables, free from weeds. What treatment shall I give them by way of cutting back, and when? Or shall I give them none at all? I have no advice on the subject, only hear it said, they must be cut back. Any advice you may give through the POMOLOOIST AND GARDENER, or otherwise, will be very thankfully received. N. BATES, *Fontanelle, Iowa.*

REMARKS.—By some mishap the foregoing was mislaid, and has just turned up. It is about as difficult to give anything like specific directions for pruning a tree without seeing it, as it would be for a physician to prescribe understandingly for a patient of whose case he knew nothing but the simple fact of illness. We believe in pruning more or less. We cannot grow a tree exactly to our taste without, nor have we ever found two trees that required like treatment in all respects. We avoid heading back as far as possible; aim to make no more extent of growth than needful for a good tree, which may be regulated to a very great extent by the right kind of management. If there is a surplus growth, we prefer to take it out clean to the stem. As to the time for pruning, it should be done with reference to the best time for healing over the wound made by amputation. We prefer the latter part of May, on through the month of June—a time when the tree is making its most vigorous growth of the season. We have pruned in *every* month, and *know* from many years' close observation, that a wound made at the season mentioned, will heal over quicker and sounder than if made at any other time in the whole year. Try it and see.

The Best Way to make an Osage Hedge.

ED. P. & G.—From an occasional article I see copied from western papers, I infer that a very great interest is felt among your prairie farmers on the subject of fences. I see that various methods are practiced in making Osage Hedge, but among all none so good as the plan adopted in some parts of this State, and though published in some of our agricultural journals, will no doubt be new and of good service to very many of your prairie farmers. I see that plashing, that is, cutting the plants partly off when three or four years old and interweaving them is recommended in the West. To such treatment

there is a very serious objection. Such mutilation of the plant weakens its vitality, from which it will never recover, and in the course of ten or fifteen years is liable to die outright. A better plan to make a substantial hedge and by which the plant is not weakened in the least, is this:

Set the plants eight to ten inches apart; cultivate well the first season. In the fall mulch it well to prevent winter-killing. This mulching will keep the weeds down, with a little attention for the next two years, and will also give a vigorous growth to the hedge. After three years' growth in hedge row, plow a deep furrow two and a half or three feet from the hedge with landslide of plow next the hedge; and have two men, one with a shovel, the other with buck mits and thick boots to bend (not cut) the hedge, and tramp it to a horizontal position, or level with the ground diagonally with the line of the hedge. Tramp the tops in the furrow, and throw dirt on them to hold them in position, leaving two and a half or three feet of the base uncovered. Thus treated they will send up from ten to twenty vigorous sprouts from each plant. This being done in the spring, the latter part of June clip it within six inches of base of sprouts. The September following clip it six inches higher, and continue the clipping semi-annually, until your hedge gets the desired height, and it will be two or three feet thick at the base, and impassable for man or beast.—S. P., *Lancaster Co., Pa.*

Fruit Notes From Delaware County.—In sending in again for the Pomologist, I will say a few words about fruit in Delaware county. I had between forty and fifty bushels of apples last fall and took second premium at our county fair. I like the Fall Spitzenburg. It is hardy as the Fameuse and bears earlier and the fruit larger. Some don't like the Northern Spy, but I am not scared about it. It is true it comes slow into bearing, but when old enough, it brings a good crop right along every year. Some get dissatisfied with the Perry Russet, but a neighbor has a number of trees that were full of apples last year. If that is the way it is going to do, every body ought to be satisfied with it. If every land owner would take and read the Pomologist, fruit would be plentier. I had German Prunes at our last county fair; a German neighbor received some prune trees from Germany and they are doing well. I have the Wild Goose Plum but it starts so early in the spring that the late frosts sometimes catch it.—Christian Steinman, *Colesburg, Iowa.*

Substitute for a Hot-Bed.—Too often seeds of tender plants, such as tomatoes, are sown too early and plants are overgrown or stunted at time of transplanting. Our rule is to sow no earlier than is necessary to give good plants at time of transplanting to the open air. *Here* we aim to start our seeds about the last of April or the first of May, and transplant to the open ground about the first of June. The pressure of spring work, together with the labor, skill and experience required for its management, has often inclined many to forego the use of the hot-bed. We have adopted a substitute. We procure a lot of shallow boxes and fill with rich dirt, such as will not easily pack or "bake" on top. I place these on the dung hill, where it is fermenting, and with some more boxes for covers, my "hot-bed" is done! Can you beat it for cheapness, economy, convenience, or any other essential point? Try it!—A. L. Hatch, *Ithaca, Wis.*

Ringing for Precocious Fruitfulness.—This process is no recent discovery as many suppose. It was introduced by a member of the London Horticultural Society nearly a half century ago. Grapes and some other fruits may not only be accelerated in ripening, but be grown larger by the process of ringing the shoots from the 10th to the latter part of July upon the last year's wood. We have never tried this process of ringing. We have heard it said, however, that, "vines treated in this manner produce fruit nearly twice its usual size, when girdled nearly or quite an inch in width. The shoot thus operated upon dies, of course, the following winter. But where a ring is taken off only *one-half an inch*, the fruit grows larger; but the bare coming together before the winter, a connection is made, and the shoots are seemingly not injured."

Cherries in the Northwest.—Under this head the Farmers' *Union* (Minn.) says: "It was the opinion of the different members of the State Horticultural Society that the Early Richmond, the Morello, and the Carnation varieties of cherries would grow and flourish like a green bay tree, but in some instances we hear of complaints that fruit will not make its appearance after the trees are in full bloom. This probably is caused by late frosts. There could be a remedy for this however. Mulch the trees heavily when the ground is frozen in early spring. This will keep the frost around the roots and of course keep back the trees from blooming so early, and when the blossoms do come the frosts of spring will have disappeared. Mr. J. T. Grimes informs us that the lower branches of his Early Richmond always bear, especially when covered with snow. This fact would seem to require the trees to be protected in the winter. Probably the wrapping of the branches with hay or straw might have a beneficial tendency.

What Fruits are Most Profitable.—At the late meeting of the Western New York Fruit Growers' Association, the question was presented, "What fruits can be planted without danger of overstocking the market?" One member answered "apples," another said "peaches," while a third would plant pears. What a difference! E. Moody, Lockport, N. Y., reported the sale of 63 bushels of Beurre d'Anjou pears in New York the past season, for $20 per barrel. Mr. Burnett, of Canada, said the Beurre d'Anjou was the most valuable of all pears grown in Canada. H. E. Hooker had sold Duchess d'Angouleme pears for $8 per bushel. P. Barry, of the Mt. Hope Nurseries, had sold no better pears of the same varieties for $14 per barrel. Dr. Sylvester said, when he planted an apple orchard twenty years ago, his neighbors told him the market for fruit would be overstocked before the trees came into bearing. Apples sold then for $1.50 per barrel, now much more. A general expression was made in favor of selling all fruit by the pound, as barrels, baskets, and other packages varied much in size and afforded no definite standard.

Strawberry Growing in 1596.—An old work published in London in 1596, thus talks about the strawberry: "The strawberrie is accounted among those hearbs that grow in the fields of their owne accorde. And the Berries be much eaten at all men's tables in the sommer for the pleasantness of them, which for a more delight in eating they dresse with wine and sugar. The rehearsall of the fame of this hearb needeth not, seeing the same is known to all persons. And it aptly groweth in shadowey places and rather under the shadowe of other hearbes than alone. And the plantes set in gardens will grow unto the bigness of a mulberry, if the earth before in the beds be well dressed, and dilligently tended of the gardener. But the hearbe of itself continueth not above a yeare."

Have a Bed of Herbs.—No family should be without a well selected store of herbs at all seasons of the year, and no garden is complete without a *bed* of herbs. Herbs are indispensable both in culinary affairs and sickness. A simple dish of herb tea administered at the right time will often save a long fit of sickness, and consequently a physician's bill. Some herbs are perennial, and require replanting only once in several years. The seed can all be found at agricultural and horticultural stores. A good list is as follows: Sweet majoram, marigold, thyme, winter and summer savory, sage coriander, anisseed, rosemary, lavender, sweet basil, caraway and fennel. Thyme, winter savory, fennel, lavender and sage are perennial; the others require the seed to be sown annually.

Grapes on Kelly's Island, 1871.—A correspondent of the Toledo Blade writes that the grape crop on that island for 1871, not counting the grapes used by the producers themselves, was 1,800 tuns, or 3,600,000 pounds. Most of the crop sold for four cents per pound, the product being $144,000. The number of acres producing this crop was six hundred and forty-four; the gross product per acre, $223.60; deduct expenses the net product per acre was $163.60. The average yield per acre was two tons and three quarters. The crop for 1871 was above an average in quantity but below an average in quality of *must*. The wine manufactured on the island for 1871, is estimated at 288,000 gallons. Not less than seventy-five tons of grapes were sold for table grapes.

Condition of Peach Buds.—The Ohio Farmer of the 27th ult. says: "Reports which come to us from almost every quarter are unfavorable as to the condition of peach buds. So far as we have been able to learn they are entirely destroyed in Northern Ohio and doubtless are fated all over the State as they have suffered extremely in Kentucky, Delaware and other Southern States. A gentleman writing from near Louisville says that they are all killed down there. In Indiana less damage has been done and in many sections the buds have entirely escaped injury. We have not heard from the Grand Traverse, Michigan, peach orchards, but we dare venture the assertion that they are in good condition, for failure there is an unlooked for thing.

The White Thorn for a Pear Stock.—I am experimenting with the White Thorn as a stock for the pear — began three years ago. On the place I bought there were two or three hundred large thorn trees, some of them thirty feet in height and with tops as large as the largest apple tree. I sawed them off properly one spring and graft the new growth the year following. Have thus far tried about fifty varieties; most sorts do no good while I am pleased with others. Any kind would be made to grow however, by double working. Have found five or six sorts that grow very thrifty and shall now commence grafting kinds that don't succeed on the thorn itself, on *them*. Will have several varieties in bearing next summer.—B. A. Mathews, *Knoxville, Iowa.*

Apples From Seed.—At a meeting of the Madison, Wisconsin, Horticultural Society Mr. Daniels said, "there was just the same probability the seedling would be identical with any other of thousands of varieties as that it would be identical with the variety from which the seed was taken." To which Mr. McAfee replied and insisted that the analogies in other cases were in favor of the possibility, even probability under favorable circumstances, of the apple exactly reproducing itself from seed. We think if Mr. McAfee lives to see his opinion verified, the "probability" is, that he will die an older man than was Methuselah.

Cleaning Osage Orange Seed.—A correspondent of the Cincinnati Gazette puts the seed balls into a sack where they are frozen solid. They are then in a warm day opened out and allowed to thaw, when the outside is pared off nearly to the seed. (If they are sticky and gum the knife, it shows they need more freezing.) With the thumb press the seed out in a bucket with water in it. Take the seed from three or four dozen balls, stir them up in the water and pour off all that float, which are worthless. If the balls have been frozen enough, the seed will come out clean, and will readily slip out by pressure of the thumb. Dry the seed the same as pumpkin seed.

Fruits in the Boston Market.—The Boston Cultivator of the 10th inst. says: "To pass through Faneuil-Hall Market and witness the display in some of the stalls of unseasonable fruits and garden vegetables, is like being transyorted to the torrid zone. Cucumbers, (only $1 each!), rhubarb (25c a lb.), radishes ($1.50 a dozen bunches), spinach ($1.25 a bush.), Malaga grapes, (75c a lb.) etc., with pears, apples, oranges and bananas, the whole being interspersed with rare bouquets, all on exhibition and for sale, notwithstanding the snow-clad earth outside."

Leaves vs. The Sun.—A writer who evidently knows whereof he affirms, says: "It is a mistake to imagine that the sun must shine on the bunches of grapes in order to ripen them. Nature intended no such thing; on the contrary it is evident that the vines naturally bear their fruit in such a way as to screen it from the sun, and man is most unwise when he rashly interferes with this intention; what is wanted is the full exposure of the *leaves* to the sun; they will prepare the nutriment of the grape—they will feed and nurse it, and eventually rear it up into succulence and lusciousness."

Peach Buds in Michigan.—The St. Joseph Herald of a late date says: We hear from every quarter most encouraging reports of the safety of the peach buds, notwithstanding the sharp frosts. Even such tender varieties as the Crawfords are reported comparatively unhurt. This is most remarkable. This upsets the wise experience of the wisest, and proves that all signs may fail in cold as well as a dry time.

Books, Periodicals, Catalogues, etc.

A New Work on Forest Trees.—Forest Trees for shelter, ornament and profit.—A Practical Manual for their culture and propagation, by Arthur Bryant, Sr. Henry T. Williams, New York, Publisher. $1.50 by mail.

This is *the* book for the farmers of the West. The author starts out with a chapter on the evils attending the destruction of forest trees, and then proceeds to show the practicability and profit of raising timber upon our prairies, how to do it, and a list of the most valuable trees for cultivation. We have looked through this book with no ordinary interest, and find it just what might have been expected from a man of Mr. Bryant's good sense and practical knowledge, and we take pleasure in earnestly recommending it to every farmer in the West.

The Ladies' Floral Cabinet.—One of the neatest and most attractive monthlies that comes to our table. It is finely illustrated, and its pages teem with instruction and amusement to both young and old of the family circle. Henry T. Williams, New York. 75 cents, single copy. Clubs of ten, 60 cents.

Every Woman her own Flower Gardener.—A book of 148 pages on floriculture in and out of doors, ornamental plants, arrangement of bouquets, diagrams for flower beds, etc. Indispensable to every lady having the care of flowers. Henry T. Williams, New York.

Nursery Catalogues for Spring Business Received.

From Ellwanger & Barry, Rochester, N. Y.; Henry C. Raymond, Council Bluffs; Haggard Brothers, Bloomington, Ills.; H. A. Terry, Crescent City, Iowa; D. B. Wier, Lacon, Ills.; A. H. Jewell, Sparta, Wis.; Robert Douglass, Waukegan, Ills.; Storrs, Harrison & Co., Painesville, Ohio; Lewis Martin, Anoka, Minn.; Robert Scott, La Porte, Ind.; S. B. Marshall, Cleveland, Ohio: Pinney & Lawrence, Sturgeon Bay, Wis.; Graves, Selover, Willard & Co., Geneva, N. Y.; H. P. Pierce. Moline. Ills.; Stark & Barnette, Louisiana, Mo.; Hoops, Brothers & Thomas, Westchester, Pa.

Seed and Floral Catalogues.—From James Vick, Rochester, N. Y.; James J. H. Gregory, Marblehead, Mass.; Henry Dreer, Philadelphia; Joseph W. Vestal, Cambridge City, Ind., Floral and small fruits, also special catalogue—List of Surplus Stock, &c., Ellwanger & Barry, Rochester, N. Y., Catalogue No. 2, Ornamental Trees, etc.

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THE POMOLOGIST

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MARK MILLER, Managing Editor and Publisher, Des Moines, Iowa.

Dr. J. Stayman, Associate Editor, Leavenworth, Kansas.
Dr. Wm. M. Howsley, Corresponding Editor, Leavenworth, Kansas.
Dr. S. H. Kridelbaugh, Entomological Editor, Clarinda, Iowa.

The Pear and its Culture.--Continued. No. 3.

BY THE CORRESPONDING EDITOR.

Having spoken of the fruit and the tree of the Pear, in their supposed healthy condition, we will now turn our attention to the diseases which affect the tree. Of these the most formidable is what is usually called the *Pear Blight*. In approaching this subject, we are aware that we are treading upon strongly controverted ground. So numerous are the theories upon the subject, that we cannot reasonably hope to convince every one that we have taken a proper and common sense view of this disease. We will, nevertheless, enter into this controversy fearlessly, feeling that we can support our views with facts enough to show that we have, in the main, at least, taken the correct position on this subject. First, then, without stopping here to canvass some of the most common views as that of *fungus* origin of this disease, or of that which attributes it to wet weather, we will proceed to point out what we consider to be the *cause* or *causes* of this disease.

Blight, although manifesting itself in different degrees and at different times, is strictly reducible to two *kinds*, and to two seasons, each resulting in the same consequences, which differ only in degree.

CAUSES.

No one single cause will scarcely, if ever, produce this disease. It requires a combination of causes to give it full developement. In speaking of the causes of *blight*, we will divide them into *Remote*, *Predisposing*, and *Proximate* or *Exciting causes*.

Remote causes, or those which lie at a distance from its development, are such as unusually heavy pruning the year previous to the showing of the disease; wherever very extensive pruning-out has been practiced the preceding year, so as to greatly lessen the top of the tree in order to give it shape, the preponderance thus given to the root necessarily gives rise to a large amount of young wood, which cannot, or does not ripen. This pruning is therefore a remote cause, but cannot of itself produce the disease.

Predisposing causes consist mainly in having the trees planted in too rich ground, in too deep and thorough cultivation and too long continued; in a wet, warm summer and fall; in an unusual amount of young and unripened wood. These may be added to the above remote cause, and yet the trees may pass through the winter without serious injury and become all right the next season.

The proximate or existing causes lie *in* a sudden and severe change of temperature in the weather, particularly from unusually warm to unusually cold, and that in a very short time; in intensely cold weather during winter, and that long continued.

Whenever, therefore, we have the *remote* cause of heavy pruning; the predisposing causes of rich ground; of thorough and late cultivation; of warm, wet summers and falls; of large amount of young and unripened wood; and, if added to these, we have sudden and severe changes from heat to cold in the fall or winter, we may almost as reasonably

look for Pear Blight the next season as to look for the season itself. But if, on the contrary, this unusual pruning is not performed the season before; or, if the ground is not rich; or, the cultivation is too thorough and long continued; or, the summer and fall not too warm and wet; if, in a word, everything shall conduce to a reasonable growth of young wood, and that well ripened in due season; and if, in addition to all this, the changes of temperature above spoken of should not occur, it would be as reasonable to look for an *earthquake* the next season as for the occurrence of *Pear Blight.*

The above remarks go to show (if they are correct,) that the exciting or *immediate* cause of blight is *atmospheric.*

The nature of this disease lies in the *ruptured* cells of the outer wood and inner bark of the tree affected. Being done in the winter, the disease does not show itself unless searched for, until the growing season, and the deeper the freezing has gone, the more fatal the disease.

The sap being thus thrown outside of the pales of vitality, becomes as any other dead matter; it soon passes on to putrefaction. Hence we find it passing through all those chemical changes, which is first *sweet*, then *alcoholic*, and lastly, *putrefactive.* Persons examining the sap of blighted trees, in some one of these different changes, have arrived at different conclusions in regard to its nature. If the facts of these consecutive changes are kept in view, few persons will differ as to the nature of this disease.

TIME OF DEVELOPMENT OF THIS DISEASE.

Because it does not develop itself until late spring or early summer, generally, many are led to refer it to the same cause, acting only at the time of the development; hence, the conflicting theories that have arisen in regard to this disease, some abandoning all hope of *ever* understanding its nature.

When the freeze has not been so severe as to penetrate deep into the sap-wood, the young shoots put forth in the spring and grow as if there were no disease in the tree. This continues until terminal buds are formed. When these buds are formed, and the wood is done growing in length for the present season, the sap then turns down between the wood and the bark to increase its diameter, by laying on its coats of new wood; hence it is that the descending sap meets with the dead sap and ruptured cells, produced by the freeze, and becomes diseased, spreading its deleterious influence wherever it flows. This happening about the same time on the same tree, has given rise to the name of Fire-blight, because of its sudden appearance.

In proof of the above statement being a rational solution of this disease, we refer to the following historical facts:

The summer of 1844 was one which produced an abundant growth of young wood, and up to the 25th day of November there had been no frost, which are usually blighting. The fall, up to this time was warm and pleasant, but about three o'clock of that day, a dark cloud appeared in the *northwest.* About four o'clock it commenced to rain. In less than an hour afterwards the snow came, followed very soon afterwards by sleet. This sleet remained on the bodies of the trees to the thickness of an inch, for some days. The mercury ran down to about zero, and changed but little from that till about Christmas. The next season was one of unparalleled destruction, in consequence of the blight, both in pear and apple tree, as well as other fruit trees. As a confirmation of this opinion, especially on my own place, I took up the same day, for the late Governor Helm, one hundred trees. They reached his home too late in the afternoon to be transplanted. They were put into his cellar over night, and were taken care of until planting time. None of these trees were blighted, while a very large amount of the trees remaining on my place were totally destroyed. The following spring, March, before warm weather could have any influence on the trees, I found, in cutting off cions for grafting, that nearly all of some varieties, especially on the east side, were surrounded, next the wood, with a layer of brown bark, the wood itself partaking of the same disease. Nearly all of he grafts failed. In this instance, the relation between *freezing* and *blight* is too clear to be

accounted for in any other way. The same thing prevailed, over a very large portion of the *West* and *Southwest.*

The winter of 1855-6 was one long to be remembered, in consequence of its intense and long continued coldness, and the devastations of blight the next season. In 1862, although the trees had not made very unusual growth, yet it was continued till late in the fall. October 23, at night, the mercury stood at 79°. During the night a gale of wind blew up from the north, which continued all of the next day, with sun entirely obscured by clouds. The night of the 24th was still and clear; morning of the 25th, mercury down to 20°—a fall in about thirty hours of 59°. The season following was one of great severity in the way of blight. Here, as in the former cases, the freezing of the fall, and blight of the next season, are inseparable as cause and effect.

In 1858, when the ground was open, there fell an unusually heavy snow about the 4th or 5th of December, followed on the 10th with a fall in the mercury to 10° below zero, and on the morning of the 11th to 17° below zero. From March 23d to the last of the month, the mercury ranged from 80° to 87°; 2d day of April, fell to 27°—a fall of 60° in 48 hours. 5th of April, fell to 22°, and on the 9th to 18°. The season of 1869 was one of considerable blight, doing much damage to the pear trees. Here again, extraordinary changes in the temperature, and *pear blight* are connected as cause and consequence.

October, 1869. Weather good until about the 20th, when the wind set in from the northeast, and about the 23d rain and considerable snow had fallen, with freezing for several days and nights, the mercury falling on the 26th to 17°, freezing all the apples left on the trees. During the winter mercury never fell lower than 2° below zero—not cold enough to hurt either healthy wood or fruit buds. Yet all, or nearly all the peach buds of budded varieties were killed before spring, leaving only the seedlings generally unhurt. From the 10th of April, 1870, to the 14th, the mercury was from 80° to 87°. The 15th, in the morning, it was down to 24°; 16th, 18°, and 17th, 18°. Here was a fall of the mercury in twenty-four hours of 60° to 63°. The year of 1870 will be long remembered, in consequence of the sad ravages made by *Pear Blight.*

Here again we see unmistakably the relations between unusual changes of temperature and pear blight. Aside from these reasons, there has been, as far as we are aware, but little, if, indeed, any pear blight. Here, then, we have a collection of historical facts, showing the inseparable connection between extraordinary changes in the temperature of the weather and blight, running through a series of years from 1844 up to 1870, so clear that we think he who denies this connection, must be blind to the force of facts.

(Continued.)

The Yellow Belleflower.--Its Varied Record.

This is a large, beautiful and highly flavored apple, in eating condition from November to January.

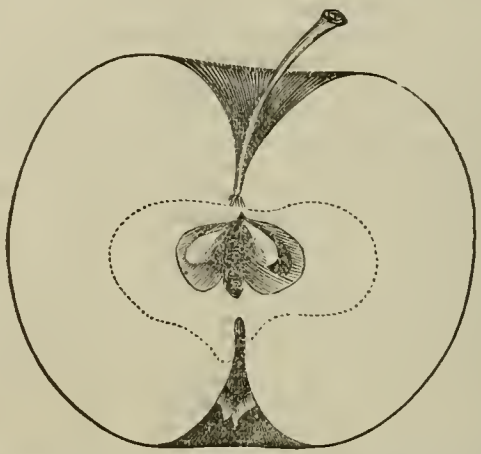
There are few apples which have a more varied record in the West, than this—while in some localities and in particular soils it gives entire satisfaction, in other apparently similar localities and soils, it is utterly repudiated by those who cultivate it, and is threatened with extirpation from the orchard because of its habit of sparse bearing. If it could be made to bear reasonable crops, and these at a reasonable age, all would want it. We propose to offer a few remarks upon these objections: *First*, its tardiness and sparseness of bearing can, to a very considerable degree, be overcome by either top-grafting it upon a stock different from itself, and that at standard height; or, if growing upon its own roots, by planting it in land where the sub-soil is different from that where it fails in time and quantity of fruit.

This fine apple originated near Burlington, New Jersey. Of the peculiar kind of soil on which it originated, we are not advised, but suppose it to be in accord with New Jersey soils generally. There, soils abound more in sand and clay, than in lime and clay. These are facts which should be kept in mind by orchardists when planting *Yellow Belleflower.* We feel quite confident that this apple will rank among the very finest in the West, if stock and soil are duly appreciated.—Cor. Editor.

Caster Crab.

By The Associate Editor.

Fruit very large for a crab; weight from two to five ounces; form round, but often oblate; skin greenish yellow, covered with dull red and bright crimson; dots irregular-large, numerous, grey; stem long, slender; cavity wide, deep, regular, russeted; eye small closed; segments long; basin shallow, narrow, furrowed; core medium, regular, slightly open; carpels large, wide; seeds rather large, dark brown, plump, ovate; flesh yellowish white, rather tough, sharp astringent acid, making a strong, heavy, clear juice; use cider, preserves; season November to April.



Tree healthy, very productive, bears in clusters, much hardier than *Hughes' Virginia Crab*, and fully its equal for cider, if not superior. Origin, Kentucky; introduced into Kansas by Dr. Wm. M. Howsley, from whom we received it in 1860.

The Philosophy of Mulching—Why and How is it Beneficial to Plants?

By the Corresponding Editor.

This subject was discussed at some length during the session of the Kansas State Horticultural Society's meeting, held at Lawrence, December, 1871.

It is almost uniformly objected, by both writers and speakers, to the introduction of theories in discussions of this kind. For ourselves, we are at a loss to know how the truth can be reached where we are tied down to a simple detail of facts. Take the *Strawberry* for example, as was taken on the occasion referred to, and at what conclusion can we arrive with anything like a certainty. The facts elicited on this occasion were as discrepant as one could well conceive. One speaker stating that mulching in summer injured his plants by keeping, as he supposed, the rain and air from penetrating the earth, so as to afford the roots a due supply of these elements. It was also a breeding place for injurious insects. Another would remark that it protected his plants from drouth and produced fine crops of berries. The facts here produced were, many of them, in direct confliction with each other. With some it was of immense value, while with others there was no good derived from it, but rather found it an injury. The same discrepancy *from facts* arose when the value of the various varieties, both of small and large fruits were under examination. With one party one variety was found to be fine, while with another it proved to be worthless.

Such contradictory statements as these are, to say the least of them, perplexing and bewildering in the extreme. Men attend those meetings for the purpose of learning something more than they know of the art and science of fruit growing. Imagine, if you can,

how perfectly confounded the beginner in this business is, when he hears facts as opposite as the poles detailed by men supposed to be qualified to guide the inexperienced in the paths of truth and success.

If our future discussions are to be confined to a bare statement of *facts*, or what are *supposed* to be facts, without regard to the different localities, the different soils, in regard to the adhesiveness and porosity, the different atmospheric surrouudings, of our supposed facts, long and weary years will elapse before we will arrive at anything like a correct knowledge of Horticultural science. With one man a certain variety fulfills his most sanguine expectations in one locality, while with another, on a similar locality, not a half mile away, the same variety is utterly worthless. These contradictory facts are not the fault of the tree or plant, for they are both, perhaps, from the same parent, but must of necessity be referable to something in the soil, seeing that the localities and atmospheric surroundings are so analogous that they could not affect the one beneficially and the other injuriously in so sensible a degree. Let us look then to the composition of the soil in each case. There we apprehend a satisfactory solution will be found. Suppose that in both cases mulching has been applied. The one succeeds, the other fails. (And here let it be remarked, that mulching is but a temporary expedient for *thorough* under-draining.) Where the latter has been well done, there is but little nccessity for the former. Now to return to the examination of the soils, on which the two above supposed plants or trees grow with such opposite effects. In each of the cases the soil may have very nearly the same composition in respect to *lime, sand and clay;* yet there may be in the one case something added, so as to hold the ingredients so closely together as to prevent the plant from being duly supplied with nourishment. While in the other case the soil is just porous enough to take the water when too abundant down out of the way of doing harm to the roots, and is held in reserve to supply the wants of the plant when drought approaches. These two conditions of soil do all the good or all the harm which is supposed to belong to the variety of the plant or tree itself, without once thinking that it comes out of the condition of the soil, which is really the case. If every person planting a tree or vine would, in every case of success or failure, set about investigating the reason *why*, our discussions would be vastly more interesting and would be infinitely more successful; and what has heretofore been looked upon as facts, would be viewed in their true light as mere delusions. Let what has been already said suffice for the unsatisfactory manner in which our discussions have heretofore been conducted. We will now make a few closing remarks upon the

PHILOSOPHY OF MULCHING.

In dry seasons mulching is highly beneficial by preventing a too rapid evaporation of moisture from the soil, and holding it where the roots use it as as a vehicle for conveying plant food along its vessels to be elaborated in such way as will be most conducive to the best condition of fruit or plant. The necessity for mulching is greater when the land is not either naturally or artificially underdrained. Where these latter conditions of soil exist, the moisture lies as in a reservoir, ready to furnish the needed moisture, to supply the waste of evaporation both by the sun upon the surface of the soil and by the leaves in the atmosphere. In wet seasons, mulching is of less importance, and is in fact *sometimes* a disadvantage by holding too much water around the roots, so that the amount of food necessary for a due development of the fruit and plant is too much diluted, and thus the fruit becomes tasteless, and the plant watery and feeble. Moreover, mulching in wet seasons, is a fruitful source of pestiferous insects. But as we cannot tell beforehand when a season is to be wet or dry, no certain rule can be given for mulching on the approach of warm weather. Every one therefore must act according to circumstances—mulch when too dry, and remove it when too wet.

To avoid all this uncertainty and perplexity, and at the same time, be more uniformly successful than in any other way, UNDERDRAIN your land THOROUGHLY. Underdrain at four feet deep and thirty feet apart will at all times so dispose of the rain fall, whatever that may be, as to carry the water down out of the way of the roots, so that the plant has

a due proportion of food and water, combined in such due proportions as are most compatable with its sound health and vigor. In dry seasons the water thus held below the roots, rises as the ground dries and the heat increases in sufficient quantities to answer all the purposes of producing firm fruit and healthfulness of plant. Until a system of permanent underdraining becomes well established throughout the whole land, success, in any department of land products, will be very uncertain. With a system of general underdraining success is the *rule*. Without it success is the exception. With thorough underdraining mulching will be rendered quite unnecessary. Without it, it will be necessary only in dry seasons.

In closing this already too long a paper, we wish to enforce that WATER forms no part of the nourishment of either animals or plants. It is simply and only the vehicle for conveying the nutritious particles to the various portions of the system where the glands of assimilation appropriate the matter thus brought to them, each for its own peculiar purpose. After it has thus performed this duty, the water becomes also the vehicle for carrying those substances, no longer needed inside, and expels them to the outside, through the lungs, the skin, the kidnies and the bowels in the animal, and through the leaves, the bark and roots of the plant. Hence composition and decomposition are continually going on in all organized bodies, water forming the vehicle in both building up and tearing down. In proportion therefore as composition or decomposition shall be in the ascendant, will the organization thrive or decline.

Campbell's Late Rose Potato.

By Geo. W. Campbell, Delaware, Ohio.

This new seedling potato was grown from a seed-ball of the Early Rose, and now promises to be as valuable and popular as a late potato, as its worthy parent has been for an early one. It is a selection from a lot of forty seedlings of the same parentage, and has not only proven more productive than any of its fellows, but more so than any other variety within my knowledge. Some of the same lot of seedlings did not produce, in their first year from the seed, more than half an ounce of very small tubers. A few did much better, yielding two pounds and a-half of potatoes to the hill, some of the single tubers reaching half a pound in weight. This was the largest yield of any single hill, with the exception of the variety called Campbell's Late Rose. This produced, in the first year, from a single seed, twenty handsome potatoes of marketable size, ranging in size from that of a hen's egg to a weight of twelve ounces, the aggregate weighing six and a-half pounds. Upon being tested by cooking, the quality was found excellent, and its wonderful productiveness has continued unabated. The second year, about three pounds were cut to single eyes and planted one eye in a hill, and produced one barrel of potatoes to each pound planted. The past season it has produced, under favorable circumstances, with only ordinary cultivation, *three bushels* from half a pound. Tested side by side with Peerless, in a parallel row of the same length, and exactly the same treatment throughout the season, Campbell's Late Rose gave *four bushels*, to *one* bushel and three pecks of Peerless.

Unfortunately, there are several other varieties offered to the public this season, under the name of "Late Rose," which are *not seedlings;* but accidental "sports," or variations found among Early Rose potatoes. There are various opinions about these "sports." Some persons think them valuable; others think them entirely unreliable; not permanent in character, but liable to keep "sporting" no one knows where. The better opinion seems to be that they are the result of some diseased or weakened condition of individual plants of the Early Rose potato, which has retarded its ripening beyond its natural period; and that it is probably the first step towards that degeneracy and decay which seems natural to the potato, and which has overtaken so many of our once popular and valuable varieties.

Campbell's Late Rose, as its name indicates, is a late variety, continuing its growth through the entire season. Its late keeping qualities are also remarkable, keeping in

admirable condition through spring and until new potatoes are ready for the table. It also grows in a cluster in the hill, close around the stem, rendering digging very easy and expeditious. Taking all its qualities into account, its enormous yield, fine quality, and splendid late keeping, it must be regarded as a very valuable late variety, superior to any other known; and this is the universal testimony of all who have grown it.

Bees and Grapes.

I notice, Mr. Editor, in a recent number of your paper, statements to the effect that a portion of the citizens of Richmond, Ind., have the new and consequently astonishing discovery, that honey bees will not only injure, but will actually destroy grapes.

This report is not altogether new to me, having heard the matter whispered from other sources; yet I did not, previous to the matter finding its way into the papers of the country, deem it worthy of notice or comment, in presence of what is looked upon as a well established fact among many of our most extensive and scientific fruit growers. Namely: that honey bees in visiting the different blossoms, carry from one to another the pollen or fertilizing elements, so that thousands of blossoms that would, in the absence of some artificial method of having this pollen conveyed to them, remain perfectly barren.

It is also well known, that the jaws of the honey bee are not made to cut through the rind of grapes, apples, pears, plums or any other fruit enclosed in a firm rind or skin. But they are simply made so as to enable them to press wax into shape when engaged in constructing comb.

One individual inquired of me if the honey bee didn't possess the ability to puncture fruit with their proboscis? In reply, I would here say that this organ is perfectly pliable, and will not puncture anything in the shape of solid substance.

In order to prove the utter inability of the bee to cut through any solid substance, let any one put her jaws under the object-glass of a microscope, where it will at once be seen that they are simply two small paddles coming together broadside, and not one sharp edge against, or in close proximity with the other, as we witness in the wasp, the hornet and the yellow-jacket. These latter insects can and do wound fruits; and the honey bee follows them up and sucks the juice. But we have no account of their ever having been numerous enough to wound all the grapes in such a village as Richmond; consequently there must be a disease of some description or other which has caused the grapes around Richmond to crack open. I would call the attention of the citizens of Richmond, to the foregoing facts, and in that connection let them search for some disease among their grapes. I would also refer them to other cities, among which I will name Cincinnati, in which I know of one person who keeps fifty colonies within the limits of the city—many others have a less number—still we hear nothing of their destroying grapes. I woould, therefore, advise the inhabitants of Richmond to search for a just cause of complaint before they attempt to expel the bees from their village. Besides, it may prove, too, an expensive experiment, if the bee keepers see proper to look after the matter. I feel confident that the legal tribunals of the State of Indiana will not sustain any such proceedings. I have known this same move to be made in another State, and by the time the matter was wound up, the prosecutors were very well satisfied to let the bees alone, if the defense would not push them for hard swearing, as it was proved beyond a doubt that bees could not puncture a grape. An attempt was then made to expel them on account of their getting into their sugar bowls and preserve dishes, in which cases they were advised to go home and instruct their women to keep all such vessels closed up and bees would not trouble them, and besides, it would learn them to be tidy house-keepers. As to grocerymen, they were instructed not to let syrups collect in puddles under and around their molasaes barrels and to keep their sugars covered up, and further trouble would cease. —*Cor. Anderson Herald.*

Raspberries. — Any one who has a garden without this fruit, should not let another season without planting of them. They are not only very nice fresh, but preserved by canning in sugar, or dried, are among the most excellent fruit there is for winter use.

Monthly Observations on Gardening, (1771.)--See p. 33.

June.

From your Fruit-trees cut off all Bruises, Gums, Stubs of dead Wood, and cankered Places. Take up the *Anemony* Roots, clip the Tops of the Bushes and the Tops of your monthly Rose often in Summer. To increase the Double-Stock-Gilliflower, about this Time, cut off a Slip about five or six Inches long, that is a pretty strong one that never had a flower on it, nor like to have one that Summer; then turn up the Bark about an Inch, cutting the sides thereof, so as the Bark may stand like the Spokes of a Cart-wheel and cut off the woody Inch, and set it pretty deep in some shady Place, first cutting off the Top to the Bud, and the other Leaves, shading and watering it for a Time; cut only the longest Tops of your Rasp Hedge even with the other.

July.

Gather the Seed of Clovegilliflowers, and keep it in the Husk till you sow it in *March* or *August*; and by the Middle of this Month finish the Layering them. Having gathered your Strawberries, cut off all the Leaves after Rain, except the Bed of White and Wood Strawberries, which you may thin and weed at the latter End of *March* and soon after make a new Bed, by setting the smallest Roots, pressing the Earth very hard to them, that the Worms force them not out; remembering that they will want watering often, so do Colliflowers, Cucumbers, &c.

August.

Sow the first ripe Cabbage-seed, also Coleworts, Turnips, Marygolds, Box Poppies, Spinage, and Lettice; sow the Seeds of *Aureculas* or Bears-Ears in a Pot of good Earth, let it stand abroad; the next Summer plant out the strongest. If the Earth is well soaked with Rain, this is rather a better time than *April* to take up all the Herbs and Flowers and to dig Horse-Dung therein that is very rotten. Now layer Bays, Lawrel, Rosemary, &c., as is showed of Clovegilliflowers, only instead of cutting that Place of them that is to lie under the Earth, run a blunt Awl three or four times through the Place; In *March* following you may remove them, if taken Root, or stay till this Month. Clip off all the Stalks and Leaves from your Strawberries, except white, and Parsley, and Sorrel, also your Pot-Herbs; and new Leaves well soon grow again.

September.

Dig a little Dung into a Bed, and therein set your strongest Cabbage-Plants, about two Inches asunder: water them very well that Evening, and no more; do so with the Plants of Coleworts, Marygolds, and Lettice; set the Tulip-Root you take out of the Earth thus: With a narrow Trowel make a Hole, then put in a Handful of Sand on which set the Root, and earth it up; the Sand is to prevent the Root from growing too deep in the Earth. Having cut off the Stalks of your Clovegilliflowers, set little short Sticks and tie them to such Branches as may be beaten flat by Snow or Rain. Gather Apples after full moon. Turnips and Carrots laid in Sand are a good Ballast for Ships at Sea.

October.

If you desire a Nursery for the raising of Stocks to graft on, sow the Seed of Crabs, and the Stones of other Fruit, and covering the Beds with Horse-Litter until *March;* at two Years End pluck up the strongest, and cut off all their Boughs close to their Bodies, and a little off the Tips, and all the strongest Roots close, especially downright Roots; then by a line and Setting Stick set them near two Feet asunder, and at two Years End many of them may be ready to graft and inoculate on. Gather Fruit in a dry Day. Full moon being past, the Bruises will not so soon rot. They best lie on Shelves in a Closet, where Frost cannot enter in Winter; but if the Apples happen to be frozen, touch them not until the Frost is gone out of them. In the same Closet fix small Lines from one Side to the other, to hang your bunches of Grapes on, being cut off the Vine at the beginning of *October;* and then prune your Vines, cutting off all the young Branches within two or three inches of the main Branches to keep all winter. Gather

not the Grapes until they are soft, though the Frost comes; Better have them withered than unripe; but if they continue green and hard till *November*, then make Vinegar of them.

November.

If you desire to raise Cabbage Seed, pluck up the best Cabbage by the Roots, and set it again in some sunshiny Place so deep that you can but see the Crown of it. Cut the Tops of your Artichokes, and make Trenches between the Rows, casting up the Earth upon the Roots as a Bank, and cover all the Bed with Horse-Litter; also cover the Asparagus Bed with Horse-Litter or good Earth.

December.

If you did not prune your Vine soon after you gathered the Grapes, now nail the strongest to the Wall with Shoemakers' Leather, each Branch near one yard asunder, cutting off all the young Shoots within an Inch of each knot, so will your pruning Work be little yearly. But when you have a long Branch that begins near the Root, you may nail that to the Wall, and cut off an old Arm; by this Means, in Time, you may cause your Vine to look young again; yet the fewer Branches any Fruit-tree hath the larger will the Fruit be. Lay Beasts' Blood and Sheep's Dung to the Roots; or about half a yard from the body of your old Vine, you may pour a Quart of Man's Urine twice a week or oftener. And in a very dry Time wrap a List of Woolen about the Body, and the other End into a Bottle of Water, and it will suck out the Water.

Although the above was published in London, England, so long a time ago, some of the suggestions may be profitably observed at the present day.

The Garden.--Why Neglected?

By Calvin Bradley, Nauvoo, Ill.

I am so situated that I have access to several agricultural papers and periodicals, all of which are read with care and attention. In doing this I notice that the many and various interests of the farm and farmer are well attended to by editors and correspondents, to the great neglect of the Garden. The common kitchen or vegetable garden seems to be disregarded and in a great measure forgotten. With your permission, I will say a few words for this poor, neglected part of the farm. A small proportion of our farmers have a good garden. The reason given for this neglect is that they have no time to attend to it. The garden requires daily care, and demands thought, patience and system in order to secure success and profit. These are just what most of farmers dislike, preferring to tend the larger crops, where less thought and more muscular power are required. They would be glad of the rich products of the garden upon their tables, and the pleasure, health and profit they would yield to the family, but the habit of neglect in this particular has become so deeply implanted, that no common influence will break it up. With the knowledge that half the ground devoted to garden culture would produce more profit than five times as much land in other crops of the farm, thousands remain without a garden even that is worthy of the name.

It would seem that due regard for the health and comfort of the family would overcome the dislike to cultivate a garden, but the aversion to systematic care and labor overrides all these considerations, and the garden remains only in anticipation, or in some out of the way place, consisting of a few rows of potatoes, a bed of scrubby beets and onions, and a lot of starved cabbages, all struggling for life through a swamp of grass and weeds. Without a garden the winter diet of a family is mainly confined to bread, meat, potatoes and sour kraut. As the genial warmth of spring returns the system requires less stimulating food, and demands cooling and juicy vegetables, fresh from the soil, yet many farmers have no garden, not even an apology for one. Their tables are never graced with early vegetables, such as asparagus, radishes, lettuce, early beets, potatoes and beans, when they might be crowned with all those luxuries peculiar to the season, by a little labor and systematic care. And in addition to these he may luxuriate on green corn, squashes, melons,

cucumbers, tomatoes, strawberries, currants, raspberries, grapes, and the larger fruits to his heart's content, and if to these be added the egg plant, celery, salsify, and various pickled and preserved fruits, what more can be desired? All these articles and more too can be had from a small piece of ground, and coming into use at different seasons thus can be had in their best condition. Gathered fresh from the garden they have a delicacy of flavor that is wanting in those wilted specimens obtained from the market, and they supply those juices and acids that the health of the human system demands during the warm season.

In another article I will speak of the planting and cultivating of the vegetable garden, and the propagation of small fruits.

Growing and Preserving Seed.--Hybridizing Plants.

By W. H. W., Hartford Co., Conn.

A very important matter to all gardeners or propagators of plants. In order to success, in the first place we must have plants true to their kind, and then we must select from these the truest, healthiest, and every way the best, such as are of the most perfect shape, quality, etc., and also those coming to maturity the earliest of their kind. The soil and situation in which the seed plants are grown should be good, best adapted to their requirements, and they should have careful culture during their growth and the maturity of their seed All plants of the same family which blossom at the same time, standing in the vicinity of each other are liable to mix. Thus different varieties of corn, cabbage and turnip, cabbage and cauliflower, turnips with ruta-bagas and radishes, squash with pumpkin, etc., are very apt to mix or cross when grown near together; some will show this mixture in the produce the same season, others will not be sensibly affected only in the seed, which when planted and grown shows its marks in the product. Some plants produce perfect or complete flowers; these fertilize themselves; others are incomplete male or female; such require the presence of each, the staminate to fertilize or shed its pollen on the pistillate; in some cases both staminate and pistillate are found on the same plant, in others on different plants. Success in seed growing requires a knowledge of all these principles in order that we may comply with all their requirements. Bees, insects and the wind or air are agents in distributing the pollen of flowers. If there is continuous wet weather during the blossoming of plants much failure of fruit will result, as the wet is inimical to the distribution of the pollen. No two plants of the same tribe should be allowed to blossom in the same garden when the seed is to be saved from either, or the seed will likely be impure. In growing seeds attempt only one sort of the same tribe the same season, and grow a sufficiency of that for several years, as most kinds will keep good for some years when properly cared for. Where seeds can be kept away from insects and anything inimical to their vitality, the best mode of keeping is in the pod or on the stalk, but usually this is quite inconvenient, and therefore the seed must be separated from its envelope, carefully dried and then put away. All seed should be perfectly ripe, and that grown in pods or like, be dry when gathered, and then further dried before being shelled or threshed. After threshing, if there is the least sign of moisture they should be spread in the sun or in a dry room till perfectly dry, when they should be put up in paper bags, or boxes of paper or wood and put away where they will be subject to no moisture or extremes of heat or cold, safe from insects or other vermin. Vegetable seeds thus treated and preserved will keep sound and good for planting for a number of years. Where seeds are produced with a fleshy envelope like the cucumber, squash, etc., they must be separated from the flesh by washing, be then dried and preserved as above. The vitality of seeds depends largely upon the manner in which they are kept, the different kinds also vary in the time which they will retain vitality; some only retain it for one year, while others will grow when ten to thirty years; kept closely from exposure to the open air, they keep much the longest.

Many fruit buds were killed in Central Iowa by the recent hail and snow storm.

Garden Peas--What to Plant--Early and Late Varieties.

It requires some judgment and experience to choose from among the numerous varieties of garden peas, offered by our seedsmen, the kind best adapted to our particular soils or locality. Most of the descriptions of culture, time of maturing, etc., etc., are copied from English catalogues, and although in that country, the pea reaches its greatest perfection, it is not always safe to rely upon their descriptions of varieties suited to our climate which is so dissimilar. My object is, in this short article, to only mention a few varieties, and such as we know to be No. 1.

The use of the pea in this country is becoming more and more common, and the smallest garden without a pea patch is something seldom seen. A loamy soil is the best for this crop, and more especially for the dwarf varieties; it cannot be too rich.

For the early sorts choose a warm sheltered situation on the southern side of a garden fence, or south slope of a hill side.

A pint of seed will sow a row about forty feet in length.

A great mistake is very often made in not covering the seeds deeply enough. I have often seen sowings by market gardeners, where the seed was scarcely covered, and when the hot, dry spell of the latter part of May came on the roots were dried up, and the vine of course yielded nothing. By my own experience, I should say, never cover the seed less than three inches in depth, and for the latter and larger sorts, not less than four inches will be found too much, if a good, well filled pod is desired.

A rule laid down by English gardeners is, when peas are sown in the usual manner, the rows should be as far asunder as the length of the stem of the variety planted. Thus a pea that attains a height of two feet should have two feet from row to row, and so on to the taller or lower growing sorts.

For convenience, peas are classified by seedsmen into three classes, viz: Extra Early, Early, or Second crop, and Late or General Crop.

EXTRA EARLY VARIETIES.

Carter's First Crop is the earliest pea in cultivation. Planted April 6th, it bloomed May 25th, and was suitable for picking June 10th. For the kitchen garden it cannot be too highly recommended.

Caractacus. — a variety very much resembling the above, with a trifle larger pod, maturing three to five days later.

Philadelphia Extra Early. — Sown April 6th, came into flower June 1st, and matured a fine crop June 18th. Is a great favorite with market gardeners.

McLean's Little Gem is, undoubtedly, the finest garden pea now in cultivation. Sown April 6th, flowered June 5th, and produced a large and perfect crop June 23d. In its habit very dwarf and of much superior flavor.

Tom Thumb. — An old and much esteemed favorite, dwarf variety; yields well and matures about same time as Little Gem.

EARLY OR SECOND EARLY VARIETIES.

McLean's Advance is to be considered the best of this class; a fine wrinkled sort; grows to about two feet in height. Sown in early part of June will mature about July first.

Saxton's Prolific Long Pod. — Is a very productive long podded variety, often having seven to ten peas in a pod. Very hardy and of fair quality; will mature about July fourth.

Bishop's Dwarf. — Grows to a height of about two feet, is of good quality and very prolific.

LATE VARIETIES OR GENERAL CROP.

Dwarf Branching, or Waterloo Market is a new English variety of great promise, very dwarf habits, productive, and a very fine flavor; matures about the middle of July.

Champion of England. — Is an old time favorite, grows to a height of about four to five feet; will mature a heavy crop by fifteenth to twentieth of July, and is always sure

to give satisfaction, where the gardener can procure brush to stick them, and give plenty of space between the rows.

Black-Eyed Marrow. — Is a very prolific, large podded variety, much used by market gardeners, on account of its cheapness.

In making these selections, it has been my aim to name such varieties only as have been thoroughly tested, and such as cannot fail to reward the cultivator.

There are many new and good varieties, appearing from year to year that should be tested by American gardeners, until they either receive or reject, as their merits may decide. — *Selected.*

Cranberry Culture in Wisconsin.

J. S. Stickney, President of the Wisconsin State Horticultural Society, in his address before the Society, February 7th, 1872, thus alluded to the cranberry interest of the State:

"For commercial value I consider our cranberry fields as equal to any fruit interest in our country. Peach or grape culture, for commercial purposes, as compared with cranberries, is disappointing and unsatisfactory. Being so perishable, they must be hurriedly and wastefully marketed, and a day of delay or unfavorable weather often causes heavy loss; while the cranberries can be barreled and leisurely transported thousands of miles away to the most favorable market. Increased value is given to these fields from the fact that they are so limited as compared with the area to be supplied with fruit, thus making a ready market and good prices always a certainty. About this there is now nothing problematical or uncertain. Fields properly improved, so as to flow and drain at will, have for many years yielded good annual crops. Ten to twelve hundred barrels from forty acres, is no unusual yield, and sometimes as high as two hundred bushels are gathered from a single acre. Of such lands we have thousands of acres, much of it easily accessible by railroads; most of it unimproved and waiting for purchasers. How long can we afford to leave such resources as these undeveloped? How long will individual enterprise neglect to grasp such golden opportunities? Give this interest ten years of such enthusiastic efforts as have been given to the fruit district of southern Illinois, or the peach belt of Michigan, and what would be the result? Can any thinking man doubt that our exports would double, yea, quadruple the exports of either of these districts?"

Forcing.— This may be defined the artificial production of fruits and vegetables, at an advanced or early period in the season. Upon forcing depend the great labors of the gardener, who cannot compete in the markets nor be a successful cultivator, unless he manage to extend the season by anticipating the natural period of the climate in which he is placed. Very much may be done in this way, with very simple apparatus, especially in the vegetable department.

What a Leaf Does.

The Bible says "We all do fade as a leaf," but the following makes it very plain that if we all *work* "as a leaf" we serve our time pretty well, and need feel in no wise ashamed to be compared to that we bit of organized nature. What can be more interesting than this description of what a leaf does?

It pumps water from the ground through the thousands of tubes in the stem of the tree, and sends it to the atmosphere in the form of unseen mist, to be condensed and fall in showers, the very water that, were it not for the leaf, would sink in the earth and find its way, perchance, through the subteranean channels to the sea.

And thus it is that we see it *works* to give us the "early and the latter rain." It works to send the little rills and streams, like lines of silver down the mountain and the plain. It works to pour down the larger brooks which turns the wheels that energize the machinery which gives employment to millions — commerce stimulated, wealth accumulated and intelligence disseminated through the agency of this wealth. The leaf does it all.

It has been demonstrated that every square inch of leaf lifts 3-500 of an ounce every twenty-four hours. Now, a large forest tree has about five acres of foliage, or 6,272,640 square inches. This, being multiplied by 3-500 (the amount pumped by every inch), gives us the result, 2,352 ounces, or 1,196 quarts, or 249 gallons, or 8 barrels in twenty-four hours. An acre of grass, or clover, or grain, would yield about the same result.

The leaf is a worker, too, in another field of labor, where we seldom look, where it works for the good man in a most wonderful manner. It carries immense quantities of electricity from the earth to the clouds, and from the clouds to the earth. Rather dangerous way of transporting *lightning;* but it is particularly fitted for this work. Did you ever see a leaf entire as to its edges? It is always pointed, and these *points*, whether they be large or small, are just fitted to handle this dangerous agent. These tiny fingers seize upon and carry it away with ease and wonderful dispatch. There must be no delay; it is "time freight." True, sometimes it gathers up more than the trunk can carry, and in the attempt to crowd and pack the baggage the trunk gets terribly shattered, and we say that lightning struck the tree. But it had been struck a thousand times before. This time it was over worked.—*American Entomologist.*

Potatoes Least Affected by Bugs.—A writer in the Michigan Farmer thinks some varieties are much more liable to destruction than others, owing to their tender foliage; still no kind is exempt. Among one hundred and fifty varieties raised the past season, the following, though not bug proof, are to some extent able to withstand their ravages: White Rose, Peerless, White Peachblow and Buckeye; at least the bugs appeared to prefer other varieties. I found the past season that early planted potatoes escaped better than the same variety planted two or three weeks later, and believe that the Early Rose, planted early, will in most sections make a fair crop by spending about one day per acre bug killing.

Profits of Onion and Cabbage Growing.—Immense Crops.

The New Albany (Indiana) *Ledger* gives an account of the great crops of onions and cabbages grown in that region on the rich bottom land along the Ohio river, from which we quote the following: "In order to inform ourselves as to the product of these rich lands, we made inquiry of one among the most enterprising farmers on the 'river bottom,' Mr. Owen Taggart. He gave us what he called 'a fair sample crop on one acre,' the past year. He planted one acre to onions in the spring, and the crop yielded one hundred and forty-eight barrels, which he sold at three dollars per barrel in the field; total, four hundred and forty-four dollars. He planted the same ground in cabbages after the onions were taken off, and the yield gathered was eighty-one boxes, which he sold at three dollars a box; total, $259.20; the grand total for one acre, $703.20. * * *

About 10,000 cabbage plants are set on an acre. They are cultivated with the plough and hoe, and after a couple of times, are left to mature. The cutting is about the first of October, and continues until Christmas. The average size of the cabbage field of each farmer is four acres, few cultivating less, and many cultivating as high as five acres. At 10,000 cabbages per acre, each man would cultivate 40,000 heads. On the bottom between this city and Bridgeport there are about fifty-five cabbage fields of the size named, employing, as cultivators, in one capacity or another, not less than four hundred persons. Upon each of these fifty-five farms an average crop of 40,000 cabbages is produced, making the total crop upon the entire bottom between New Albany and Bridgeport, 2,200,000 heads, an immense product for 220 acres of land, about the amount cultivated in this vegetable. This immense crop of cabbages is nearly all shipped South. Most of it goes direct to the city of New Orleans. Shippers purchase cabbage of the farmers by the barrel. Each barrel contains from twelve to twenty-five heads, as to size. The average price during the season has been one dollar per barrel. The shippers here have realized about three cents a head net upon their shipments this season, showing the cabbage trade to be a very profitable one.

Growing Celery.

Very few attempt to grow celery from the mistaken notion that its culture is attended with more or less difficulty. But with this as in other things, cultivation has been somewhat simplified within a few years past, requiring much less labor and care than under the old mode of trenching. At a late meeting of the Montgomery (Ohio) Horticultral Society, one of the members said that the present mode of culture differed materially from that practiced a few years ago. A deep trench was formerly considered the first requisite in the cultivation of celery. He has practiced plowing open a trench of only moderate depth, but from experience contemplates planting on the surface for the next season. The seeds should be planted as early as prudent in the spring, in beds out of doors. Plants grown in this way are much hardier and more certain of success than when sown in boxes. The young plants should be cut back once or twice in the beds and before transplanting, to induce a stocky, solid growth. They should be grown thinly in the beds. With proper care they will be ready to be transplanted into the garden rows from the 15th to the 31st day of July. Earlier planting than this is not desirable, as celery makes its principal growth after the nights become cool, and the greatest secret of success is in keeping the plants in good condition until this season arrives; which, in our hot sun and dry atmosphere, is a delicate matter. The hilling-up process should be gradual, beginning when the plant is about ten inches high; and at first only sufficient earth should be drawn up to the plant to keep it from spreading out; the plants should be set six inches apart. Celery loves moisture, and irrigation is of great advantage in its cultivation; the water should not come in actual contact with the plants, but allowed to gather between the rows. The moisture is absorbed gradually in this way, conducing to a healthy, steady growth. The soil for the growth of celery should be cool, deep, and rich, of a pure loam free from gravel, and with but little sand.

The Hanson Lettuce.

Henry A. Dreer, Seedsman, Philadelphia, says: "The cut represents a sectional view, showing the inside of this superior Lettuce, the heads of which grow to a remarkable size, and are deliciously sweet, tender and crisp, even to the outer leaves. We are indebted to Col. Hanson, of Maryland, for this variety, who states that it has been in his family for many years. The heads are very large, a single one is frequently large enough for an ordinary sized family; the color ts of the most beautiful green without, and white within, and is entirely free from any bitter or unpleasant taste found in some varieties. Notwithstanding the usually dry spring of 1871, and excessive heat in June last, it headed up remarkably solid, and was the admiration of every one who saw or tasted it, the heads weighing from 2½ to 3 lbs., and measuring to outer leaves 18 inches in diameter. A special Premium was awarded to this Lettuce at the Rose and Strawberry show in June last."

The Mountain Ash for Stocks.

By B. A. Mathews, Knoxville, Iowa.

Do we not need a little more light on the question of "Mountain Ash for Pear Stocks?" One correspondent has recently advocated the use of this stock upon which to work the Pear; while another seems to favor its trial for this purpose. To the latter idea no one could object; but to assert that "it is undoubtedly as good as any stock for the purpose," or to say that "those who have had the most experience with it, and therefore know best about its merits, have no hesitancy in recommending it as the BEST stock for the Pear," seems to me to be rather a sweeping statement. There are many fine fruit culturists who consider *Pear seedlings* themselves very valuable for the uses above mentioned. Others, again, prefer the Quince for some sorts. Let a person review the back numbers of the *Horticulturist*, and he will find this question was agitated nearly a quarter of a century ago, by a number of zealous pomologists, who at that time thought *they* had found the "best stock for the Pear." But write to them to-day and you will find as I have found, that they have but little encouragement to offer. Many valuable facts may be learned, however, by further actual experiment, which is the only test. For instance, what varieties do best on this stock? How should they be worked? At the ground, or at standard height, thus exposing less of the body of the pear tree itself. And what kind of Mountain Ash should be used?

S. L. Goodale, Secretary of the Maine Board of Agriculture, who has experimented considerably in this direction for the past twenty-five years, writes that he has been more successful by grafting the limbs of large trees than in any other way. Some years ago, I grafted nearly a hundred fine Mountain Ash stocks (mostly American, but some European and a few oak-leaved,) with a number of the leading varieties of Pears. Since then, I have from time to time grafted others. Of the first grafting all are now dead, in the meantime bearing no fruit. Three years ago, I set over a hundred grafts in the limbs of large trees, but they are dead also, with two or three exceptions. I have not yet succeeded in getting a Winkfield or a Clairgeau to survive the first winter, as they do not mature their growth. Many others will blight the second summer, and the third season generally calls in the remainder. My father has a Buffam and a Seckle on his grounds, three years grafted. But they both look badly demoralized, and I think will die next summer.

The Pear, or many sorts at least, make a fine growth for a while. So will apple. Grimes' Golden, for instance, grows well one year and dies the next. The American and European Mountain Ash seem to be better stocks for this use than the Oak-Leaved. Should a Pear graft die suddenly during the growing season, it will kill the stock. I find that the *Beurre d. Anjou* does not take well on the *Quercifolia*. And the Clapp's Favorite on this stock kills the first winter. It does not do so, however, on either the *Aucuparia or Americana*.

The following sorts make a vigorous growth for one or more years: Seckle, Buffum, Winkfield, Clairgeau, Flemish Beauty, Clapp's Favorite, and Frederick of Wurtemburg. The ones that are most promising are Seckle and Buffum.

I cannot understand Mr. Wier, when he says that the American Mountain Ash "is a much smaller and slower growing tree" than the European variety. With us the reverse proves true. We have both sorts sixteen or seventeen years old. I think then, in order to settle fully this question, as to the reliability of the Mountain Ash for stocks, that we need still more practical experience and actual tests in the orchard.

A Bone for Scientific Pomologists.—A correspondent of the Maine Farmer says: Let me give a bone for our scientific pomologists to pick! Five years since, I determined to change the native tops of two of my Alexanders. Into one I grafted the Somerset, and into the other the Oldenburgh. The former produces the original fruit, as to size, form, color, flavor, etc., while the latter produces a good crop annually (which is not the case on the original) with all the characteristics of the Oldenburgh, as to markings, form, flavor, etc., except size, which is enormous—quite as large as the largest Alexanders. Can any of your numerous readers account for the anomaly?

The Grape Vine Fidia.

By The Entomological Editor.

For a number of years this Beetle has been knowu to Entomologists, and belongs to a large group of Beetles—the *Chrysomlia* family—but remained unnoticed until the year 1867, when it was described for the first time by the late Dr. Benjamin D. Walsh, of Rock Island, Illinois, in the *Practical Entomologist*, volume two, page 87, and by him given the classical title of *Fidia Viticida.*

This coleopterous insect, of which the cut in the margin of this article will serve to give the readers of the Pomologist and Gardener an idea of its appearance, the hair line representing its natural length; is colored chestnut-brown and covered with whitish hairs, which gives it a hoary appearance. Its legs are all the same size, not enlarged in the thighs, as is the case with the steel-blue Beetle—the Grape Vine Flea Beetle—*Haltica Chalybea.* Like all other members of the *Chrysomela* family it has four joints in its feet, (tarsi) and by their *larvæ* almost universally feeding on the leaves of plants. It makes its appearance in May and June, and by the end of July is gone. Its mode of propagation is not understood further than analogy to allied insects suggests.

As a foe to the grape vine it stands number one—doing its meanness by eating holes in the leaves, which it reduces to mere shreds if the insects are numerous. It is found on the native grape vines of the woods and on the *Cercis Canadensis*, and is exceedingly fond of the Concord of the vineyard, as well as several other varieties. By persons unacquainted with them they are often taken for the Rose Bug, an entirely different being.

Like the Colorado Potato Beetle—*Doryphora dicem*, and the *Curculio* family, when disturbed it feigns death and falls to the ground; this habit is a fortunate one for the grape grower, for by this means it is easily captured and destroyed. Chickens and ducks devour them ravenously when thus shaken to the ground.

Ashes for the Borer. — Perhaps my mode of getting rid of borers in trees would be of interest to some of the readers of the Pomologist: If near the ground, I cone up fresh dry ashes, so as to cover the location of the depredator, and if high up, wet the ashes and put on a good layer, and bind it there with a piece of cloth, and the intruder is done for. Once in Illinois I had over two hundred peach trees badly assailed by them, the borer. I went to a steam mill and got a large amount of good dry ashes, and put from a peck to a bushel to the tree, and I had no further trouble with borers. Some of the trees at the time were pronounced, by those who professed to know, to be badly affected by the yellows; but whatever the disease was, it quickly disappeared after the application of the ashes. — Peter M. Gideon, *Excelsior, Minnesota.*

Peaches.—Wm. Parry furnished the following select list of peaches for profit in New Jersey, at the meeting of the Pennsylvania Fruit-Growers' Society, giving a succession from earliest to latest: Hale's Early, Troth's Eatly, Mountain Rose, Large Early York, Crawford's Early, Oldmixon Free, Stump the World, Ward's Late Free, Harker's Seedling, Late Rareripe, Crawford's Late, Beer's Smock, Heath Cling aud Salway. The latest of these would not ripen well as far north as New York State.

Cranberries on Upland.—A writer in the Journal of Agriculture claims that the cranberry may be successfully grown on sandy loam. His mode is to dig trenches two feet wide and twenty inches deep, and fill up with swamp muck, and set the plants thereon. We have no faith in this plan. The cranberry plant will grow and flourish on sandy loam *without* the muck for a time, as we have seen, but as for fruit it amounts to little or nothing, and the plant itself will soon dwindle away. We have seen the cranberry growing on poor upland in New England and fruiting well among alders, where the plants were partially shaded from the sun.

Editor's Portfolio.

Origin of the Stark Apple.

I wish to correct an error in the POMOLOGIST concerning the origin of the Stark. It is stated in the February number that the Stark originated in Western New York, while the fact is it was Central Ohio. It was first brought to notice by H. P. McMaster, Leonardsburg, Delaware county, Ohio, some twelve years ago, and who presented the fruit to the Ohio State Horticultural Society for a name, and the name of Stark was given to it. The honor of introducing it into Illinois belongs to your humble servant, instead of to M. L. Dunlap, as stated. I was born and came up in Delaware county, Ohio, where the Stark apple has grown for over fifty years. The original tree still stands on the farm of Siberias Main, some five miles from Delaware, and is yet as strong and vigorous as ever. The tree was planted by John Main, the father of Siberias. This is the true history of the Stark apple.—A. H. GASTON, *Henry, Ill.*

REMARKS.—We gather from both Warder and Elliott, that the Stark came from Erie county, N. Y. Warder in his *American Pomology* says:—"From Erie county, New York, this fruit has made its way westward by the Lakes, having been distributed by Col. Hodge, of Buffalo, and brought to the notice of his western friends by Hon. M. L. Dunlap, of Champaign, Ill.," etc. If the Stark originated in Ohio, and was first brought to notice as stated by our correspondent, it is very strange that neither Elliott nor Warder should have been cognizant of the fact, and given a different account of it in their works on fruit.

Criticism.

The notes on the contents of the January number of the POMOLOGIST, page forty-one, February number last, arrested my attention, in reference to the article "Fruits, how formed, etc." He truly supposes "that all may be new to many readers," "but as it is all in the books," he objects to a "reprint, varied only in words." I would ask a civil question. What does Mr. E. know that is not in the books? What *new* matter can he grasp? "Let him, then, simply tell the reader or student" what he knows that is worth knowing about this *new* matter which *he* can grasp. If he is blessed with an extensive and expensive library of books, it would be selfish in the extreme to refer "the many readers" to said books for information to which they have no access. Nor can every one afford such a library; hence, it is quite as creditable for him, provided "he has capacity," to compile matters of interest, perhaps scattered through numerous and expensive volumes, to edify others to whom it may be "new." Because you or I, Mr. E., have well filled shelves of costly and rare books, should we be like the "dog in the manger" and sneer because one more liberal is willing to edify others, who may be desirous to know what the "books" say upon the matter treated of? If some one has said or stated a fact, or made a discovery, which we find to be correct, we may use the information without attempting "to prepare a complete work surpassing others."

No, friend E., your remarks do you no credit, for I venture to affirm, if any of our present "Solomons" were to publish just so much and no more than what was *really new*, and not in the *books*, a primer of ten pages would contain it! Seeing you have both the knowledge and the books, do not begrudge the "many readers" what to them may be new in our journals. It is sheer selfishness. But rather go and do likewise, as your humble writer of

"FRUITS, HOW FORMED."

Charles Downing and Kentucky at the South.

Charles Downing.—This new sort has sustained the high reputation under which it was

first sent out. A Seedling from Downer's Prolific, it is a vast improvement in every respect upon that rather popular variety. During the three years we have had it in bearing we have not been able to find a single fault with it. It stands the heat of our summers perfectly, bears abundantly and the fruit is of the largest size, handsomest shape and color and best quality. What more is wanted? Adapted to all soils and modes of culture. Flowers perfect.

Kentucky.—Another seedling from Downer's Prolific, and one of the largest, handsomest and *latest* strawberries grown. The plant is perfectly hardy, passing through our hottest and longest drouths unflinchingly, and bears most excellent crops on mature plants. In full season ten days after other sorts. In our two year's experience with it, we have been highly pleased with its general good habits. As a late market stock it is without a rival. Succeeds in all soils. Best cultivated in stools. Flowers perfect.—*Rural South-Land.*

American Sweet Chestnut.—Why Called Sweet.

This is one of our valuable trees for ornament, for timber, and for fruit. The Spanish and French chestnuts are very large, but the trees are tender and the fruit insipid and flavorless. The appellation of *Sweet* Chestnut is given to our American species to designate the superior flavor of its fruit over the European nuts; and, as our American species is widely different in size in its varieties, we shall undoubtedly soon produce sorts equaling those of the French nurseries in size, with the peculiar sweetness and richness of the American species. Some of my seedling trees produce very small and others very large nuts. I can supply a few of these large nuts to such persons as may wish to raise new seedling varieties, at advertised rates. — James Weed, *Muscatine, Iowa.*

Swine in Orchards.—A. M. Gatch, of Milford, Ohio, stated at a meeting of the Ohio Horticultural Society, that he prevented his apples from falling, and kept them on his trees into October, by turning in swine. He kept from forty to sixty head of swine among his trees, and they plowed up the ground so thoroughly that he supposed that they destroyed all the insects as they fell.

New French Pear.—A contributor to the London *Journal of Horticulture* thus speaks of a new Pear, called *Buerre ae l'Assumption:* "I have to-day (September 25th) eaten one of the finest pears of the month. It is large, and in color much like the Brockworth Park. The habit of the tree is robust, much like William's *Bon Chretien*, of which I should think it a seedling, and it is marvellously prolific. There is none of the William's musk in its flavor, but a rich, pleasant, vinous, sugary taste."

Stimulating House Plants.—The Boston *Journal of Chemistry* says that house plants ought to be stimulated gently, once or twice a week. Rain water, so refreshing to summer flowers, always contains ammonia, which also abounds in all liquid manures. An ounce of pulverized carbonate of ammonia, dissolved in a gallon of water, will make spring water even more stimulating to plants than rain water. A table spoonful of guano to a pail of water will make a stimulating liquid manure.

Changing the Colors of Flowers.—The Mirror of Science says that a case is known of a yellow primrose which, when planted in a rich soil, had the flowers changed to a brilliant purple. It also says that charcoal adds great brilliancy to the colors of dahlias, roses and petunias; carbonate of soda reddens pink hyacinths, and phosphate of soda changes the colors of many plants.

A Dwarf Horse Chestnut is also described in the *Gardener's Monthly* as a picturesque shrub producing flowers of much beauty. It is a native of the Southern States and is but little known. It is said to bear some resemblance to the California Buckeye and is perfectly hardy, and easily propagated by suckers or from seed.

Pear Growing in Cities.—E. Satterthwait, of Jenkintown, Pa., said before the Pennsylvania Horticultural Society, "long experience had established the fact in his mind that while in the country the trees drop their leaves prematurely, those growing in city grounds never do so, and are exempt from other maladies, bearing uniformly the finest fruit. How much has shelter—approaching almost the "cold-house" condition—to do with this result? As for varieties, he finds very few of indisputable excellence. The five best for market are the Bartlett, Seckel, Angouleme, Lawrence and Anjou."

President Wilder and Salem Grapes.—J. H Babcock, of Lockport, informs the Small Fruit Recorder that one vine of the President Wilder, which he grafted on an Isabella root three years ago and trained on the side of a building, yielded the past season fifty pounds of grapes, which, at the time of his writing, he expected would be in good condition for eating on the Christmas holidays. The fruit of this variety sells at 15 cents per pound when the Concord sells at 10 cents. He finds the Salem about as productive as the Wilder, of better quality, and a longer keeper.

Northern Illinois Horticultural Society.—This Society held its annual meeting at Princeton Ill., Jan. 23-25. The following officers were elected for the ensuing year: President, L. Ellsworth, Naperville; Vice-Presidents, E. H. Beecher, Robert Douglass, J. S. McCall, D. C. Scofield, Arthur Bryant, Jr.; Cor. Secretary, D. Wilmot Scott, Galena, Recording Secretary, Jonathan Periam, Chicago; Asst. Recording Secretary, R. Little, Freeport; Treasurer, L. Woodard, Marengo.

Indelible Labels.—The *Revue Horticole* recommends an indelible fluid which may be used to write on zinc labels, for attaching to trees and plants. Put in a small bottle of common ink two pieces of sulphate of copper, each the size of a nut. Let it dissolve thoroughly and you will have a permanent and cheap ink. Wash the labels clean with vinegar before writing on them. If it is desired to change the name on a label, it must be moistened with hydro-chloric acid, and the former writing erased with a piece of cork.

Varieties of Peaches.—A correspondent of the New Albany Ledger says: "I have tested the Hale's Early, Troth's Early, Large Early York, Early Red Cling, Early Newington, Early Slocum, Early Rareripe, Crawford's Early, Old Mixon Free, Old Mixon Cling, and Crawford's Late—all of which have done well in my orchard, except the Hale's Early, which has only done well under a high state of cultivation, and otherwise has rotted on the tree badly.

High Culture for Apples.—Moses Brinton, one of the most successful apple growers in Pennsylvania, says his success in growing fine apples was owing to high culture. Before planting the ground was thoroughly prepared and liberally manured, and this system was kept up, so the ground was at all times in good heart. The trees were pruned judiciously, and the bodies and main branches kept smooth and clean by good culture and washing.

Circulation of Sap.—It is maintained by scientists that the sap of trees ascends in the Alburnum or sap-wood, where it makes its first deposit of new wood—a theory that has led to many experiments. Mr. Williams applied it to the early maturation or ripening of grapes; he found by taking off one quarter of an inch of the bark in width, that the sap was impeded in its descent, the parts above became larger, the fruits swelled and ripened.

Big Pines.—E. P. Parkhurst, Merrimack, N. H., writes the Mirror that he cut 281 running feet of logs from one stump, the smallest of which measured six inches through at the top. He mentions another tree that measured 6,171 feet, board measure. New Hampshire is "some" on big pines.

Wilson's Strawberry.—A correspondent of the Rural New Yorker, in summing up small fruits for 1871, says: "With all the grand improvements announced and promised we find ourselves at this time just in the same position that we were ten years ago in regard to varieties for general cultivation, the Wilson's Albany taking the lead."

Nursery Catalogues for Spring Business Received.

From Neally, Bock & Bingham, Burlington, Iowa; Lewis Ellsworth, Naperville, Ill; Geo. P. Peffer, Pewaukee, Wis.; J. C. Plum, Milton, Wis.; Hargis & Sommers, Quincy, Ill.; John Wampler, Trootwood, Ohio; Joseph L. Budd, Shellsburg, Iowa; T. C. Maxwell & Bros., Geneva, N. Y.; W. P. Lipsey, Marion, Ind., Trade List.

Seed and Floral Catalogues: From Ellwanger & Barry, Rochester, N. Y., abridged list of novelties and specialties; James Vick, Rochester, list of special Floral prizes; T. S. Hubbard & Co., Grape Vines, Small Fruits, etc., Fredonia, N. Y.; S. B. Fanning, Choice Farm and Garden Seeds, Jamesport, Long Island; N. Y., Samuel Edwards, Evergreens, etc., Lamoile, Ill.; James A. Root, Skaneateles, N. Y., Native Evergreens; F. S. Kellogg, Seeds and Implements, Chicago, Ill.; J. Cochrane, Green House and Bedding Plants, Havana, Illinois.

Errata.—In the proceedings of the Northwestern Horticultural Society, page 53, February number, for Rev. G. W. Nunier, of Nunier, read G. W. Miner, of Miner.

Acknowledgements.—Henry Dreer, Seedsman, Philadelphia, has our thanks for a package of seeds, containing many sorts of garden and flower seeds. We are also under obligations to J. C. Neff, Duncan's Falls, Ohio, for a package of what he calls Mole seed. He assures us that the leaves of this plant placed in the run-ways of the Garden Moles will make that pest of the garden "skedaddle instanter to parts unknown."

Receipt of Cions.—The Associate Editor would acknowledge the receipt of cions of the Stark apple, from John Edgerton, Vineland Nursery, Coal Creek, Iowa, also of Ernst Von Oven, Naperville Nursery, Ill. We also have cions of the Wealthy apple of Peter M. Gideon, Excelsior, Minn., which have the characteristics of a very hardy variery, which we in former years pointed out by the color of the bark, etc., for all of which they have our sincere thanks.

Associate Editor.

☞The natural life of the pear tree is admitted to be from fifty to one hundred years old—a fact fully verified.

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THE POMOLOGIST

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MARK MILLER, Managing Editor and Publisher, Des Moines, Iowa.

Dr. J. Stayman, Associate Editor, Leavenworth, Kansas.
Dr. Wm. M. Howsley, Corresponding Editor, Leavenworth, Kansas.
Dr. S. H. Kridelbaugh, Entomological Editor, Clarinda, Iowa.

The Pear and its Culture.--Concluded.

By The Corresponding Editor.

Having thus spoken at considerable length of extreme changes in temperature being the exciting cause of blight in the early part of the season, say May and June, we will now speak of *blight*, produced at a different time and by a different cause. We mean by this what is usually, but incorrectly, called *insect blight*. We choose to call it *sunscald blight*, or that which is produced by the direct rays of the sun.

While the blight first spoken of does not manifest itself usually, till May or June, this latter, or sun-scald blight, is not seen till July or August. Intense heat can have no particular agency in the first kind spoken of, because the rays of the sun have not, in May or June, acquired sufficient force to produce anything more than ordinary growth. While in the latter kind of blight, at the time it occurs, there can be no such sudden and extreme changes of temperature as produce the first, but is brought on by long continued and intense heat of the sun generally.

We had a striking instance of sun-scald blight in the summer of 1870. The new made wood on many trees, which seemed to have nearly recovered from the earlier blight, were killed in July and August. This result could not be looked upon as very strange, when we remember that the mercury, during nearly the whole month of July, and a part of August, ranged from 97° to 102°, the sky scarcely ever obscured by clouds.

If then, the first kind of blight is produced by the freezing of the sap, so as to rupture the cells by its expansion into crystals. So, also, is the second or sun-scald blight, produced by the direct rays of the sun, destroying the vitality of the sap. In the one kind it is produced by the intense abstraction of the heat, and in the other by the intense and direct infusion of heat — so that in both cases it is the result of atmospheric influences.

A striking illustration of this sun-scald blight is found in the following facts: First, it is known to all who were living in Kansas during the summer of 1860, that it was drier and hotter than had ever before been known. The adjacent inhabitants of Missouri and the Indians, who had been here since about 1830 — a period of about thirty years — had never known it either so dry or hot. It is also known that the ninth day of July and the second day of August, 1860, were more intensely hot than any other days of the season, the mercury running up to 112° in the shade, with a sirocco wind each day, blowing almost a gale.

NOW FOR THE RESULTS UPON VEGETATION.

We had a field of corn planted on the seventh day of June, which, notwithstanding the drought, was growing thriftily, and which, if we remember rightly, had not yet shown a tassel. The blades on this field of corn were killed outright from the tip, half way back to the stock. They looked as if they had been dipped in boiling water, all the green coloring matter in them having entirely disappeared.

During two or three subsequent seasons I have had my melons, my squashes, my cucumbers and my tomatoes scalded in the same way, by the intense heat of the sun's direct rays. These vegetables were on an inclined plane, sloping on an angle of about 30° to the south. The same kinds, protected by the sun's direct rays, were not so injured. If field crops, garden fruits and culinary vegetables are thus killed by the intense heat of direct sunshine, while in a growing, succulent and unripened condition, why may not the tender, succulent and unripened twigs of fruit trees be destroyed in the same way? We confess, we are not able to see why not. In every instance here referred to, the vitality of the sap or *blood* of the plant was destroyed, and that, too, while in an unripened condition. Ripened plants, fruits and well matured wood are much more capable of withstanding these intense conditions of heat. In the case of frozen sap (or frozen wood, if the latter is preferred to the former), in late fall or early winter, blight is generally, I may say uniformly, found to affect the unripened wood, while the well ripened wood is as uniformly found to escape. The very same result is found in vegetables, fruits and trees. It is presumed that no one will question the fact that the heat of the sun may be so intense as to destroy growing vegetables — if this be true, then all we claim in regard to sun-scald *blight* is established. Why is it that twig or *insect* blight, as it is sometimes called, is never found to attack the twigs earlier than July or August? Simply because the sun's rays have not before this time become sufficiently intense to destroy life — up to this time the *blue* rays, or those that give the green color to plants, predominate; after this time, till the approach of autumn, the yellow or intense burning rays have the ascendency. It is during the prevalence of these rays, that sun-scalds and sun-strokes most fatally prevail.

WHY DOES THIS FORM OF BLIGHT AFFECT THE APPLE MORE THAN THE PEAR TREE?

It may be asked why this form of blight affects the apple tree more frequently and to a greater extent than it does the pear tree. We answer, simply because pear trees as a rule ripen their wood earlier in the season (when it is ripened at all) than apple trees, coloring and casting their leaves long before the apple. Another question may here be asked, and that is, if pear trees ripen their wood before the apple trees do, why is the blight of May and June in the pear tree attributed to its unripened wood? We reply, because the apple tree, when it does ripen its wood, although later in the season, ripens it more perfectly, hardening its wood more thoroughly as a consequence of its drooping habits, compared with the pear tree. In conclusion, upon the subject of the tree blight, we would say that we hold ourselves open to conviction, and whenever our friends who advocate the fungoid or insect theories of this disease, will fortify their positions with meteorological, or any other facts going to prove them right, we shall feel more disposed to give in adhesion to their doctrines; but until the facts are produced and shown to be inseparably connected with the disease in question (as we feel we have shown our facts to be), we shall feel that we are standing upon a sure foundation. Let us have facts as well as theories. One fact may suggest a thousand theories, but a thousand theories can never produce one fact. Facts are comparatively self-existent things. Theories are manufactured articles. Let us have the facts.

TREATMENT NECESSARY TO BE GIVEN TO THE FRUIT.

Having already spoken at some length of the pear tree, its habits and diseases, especially the blight, we come now, in conclusion, to speak of the treatment necessary to be given to the fruit. This will depend very much upon surrounding circumstances, such as the bearing habit of the tree, the amount of wood made the previous season, the kind and condition of the soil in which the tree stands, and the kind and amount of cultivation it is to receive while it is growing and maturing its fruit. If it is the habit of the tree to bear profusely, and its energies were greatly expended the previous season in making a large amount of young wood, the fruit should be thinned, but sparsely. But if, on the contrary, it made but little or no new wood for want of cultivation the preceding season, or in consequence of the thinness of the soil, then the thinning should be heavy in keeping with the circumstances, and the cultivation proposed to be given during the growing and maturing season just approaching. The thinning process should commence when the

fruit is not more than an inch in diameter. A second thinning may be performed when the fruit is half grown, selecting the imperfect specimens *only* at this last thinning.

The next thing to be attended to will be the gathering of the fruit. For summer and autumn varieties the rule should be to gather about a week before they are ripe, if this can be known. This can be ascertained generally by knowing the time when it will ripen if left on the tree, in ordinary seasons. For the gathering of winter kinds, the rule should be to leave them on the tree as long as they are safe from frost. At the time of gathering pears, either for summer, fall or winter use, they should be divided into not less than two classes, keeping the first and second classes separated from each other. The second class may be kept for home use if desired, and the first class sent to market. Or, if both lots are sent to market, they should be offered for sale in distinct lots if it is expected to obtain good prices. When they are gathered they should be kept in a cool, dry room, free from currents of air, till they are ready for market, which can be regulated according to the distance they may have to be sent.

Winter pears should be put into boxes or half barrels lined with some soft woolen cloth, and covered with the same, to prevent the escape of their moisture, and kept in a cool, dry room or cellar. Kept in this way they will ripen up finely, and if assorted as before directed, they will command the highest prices in the market.

We cannot close this article without naming the varieties best suited to the region from the Mississippi to the foot of the Rocky Mountains, and between the latitudes of 36 and 41 north. On the pear root or those generally called standard, we will name as first in every respect, the Bartlett; second, the Flemish Beauty; third, the Belle Lucrative; fourth, Buffum; fifth, Lawrence; sixth, Winter Nelis. On quince roots or dwarfs: First, Beurre d'Anjou; second, Beurre Diel; third, Duchess de Angouleme; fourth, Easter Beurre; fifth, Louise Bon de Jersey; sixth, Vicar of Winkfield; seventh, White Doyenne.

There are many other varieties which may prove to be fine when more fully tested, but the foregoing we know to be reliable.

Shall we Kill the Birds?

By Peter M. Gideon, Excelsior, Minn.

Shall we kill the birds? was asked not long since by a correspondent of the Pomologist, who had lost heavily in grapes by their depredations. Were I in his place, and the amount too small to afford a person to keep guard and scare them away, I should cover with a mosquito bar; but to kill, never — other than crows or blackbirds. Birds are more numerous about our premises than any other farm within my knowledge. The reason is, we don't disturb them; they will gather fruit from the same tree with us, and often within arm's length. So many summers have they spent with us that their tameness is often surprising. The blue jays, as all others, are at home with us; and feed on what they will, we never harm them. Have been an admirer of the bird from a boy, and noted well their habits; and that they rob and kill other birds, as some have charged, is a mistake. There is a small hawk that very closely resembles the jay in size, color and in cry; but the jay has a straight bill, and the other a hooked bill, like other hawks, and will kill birds as large as themselves. Jay hawk is a proper name, but many apply the term to the blue jay, which is as harmless a bird as any that flies, and few, if any, are of more benefit to the farmer, yet none more relentlessly slaughtered. Even for eating a little corn, many farmers shoot them, forgetting that the insects they had destroyed through the season had saved in his various crops more than a hundred times the worth of corn they ate, and, if let alone, would repeat the saving year after year. Even the blackbirds that nest in our vicinity we don't disturb; only those that are migrating, that come in large flocks, and reluctantly shoot amongst them, and as little as possible, to drive them away. Farmers and fruit growers should encourage all species of birds to nest in their vicinity; the benefit therefrom is incalculable. Were the birds all swept from existence at once, it would be no hard matter to conjecture what would be the fate of farm and fruit crops in the course of a few years. Self-interest, if nothing more, should prompt all persons to spare the birds.

But were birds of no pecuniary interest to mankind, their songs alone would repay for all damage done fruit and farm crops. The charm they have for the eye, and the rapture to the ear, are refinements that tell on the social natures of all who see them sport or hear their warbling songs. The boy that can recklessly shoot a little feathered songster merely for sport, betrays a void of youthful taste and sympathy, that if unchecked may one day sport with human agonies. But were the shell knocked off the full grown man, or what should be man, that is found killing little birds, and his principle in form exhibited to sight, it would make you shudder, though you had the beast in an iron cage. Next to the song of an angel sister is that of a harmless bird, and he who would kill the one for eating a cherry, would, if he could, strip the other naked and sell her robes for a shilling. Of all creation, perhaps the hog has least love for the beautiful and less ear for music; and thereby we can take measurement of the soul of the man that shoots the painted songsters to save a cherry or a grain of corn — the hog can appreciate food. Could such principles be barreled up, the pork market would be glutted. But as it is, when the principle kicks itself out of the shell, a hog is loose on its own hoofs, and only knows itself as it feels the hog principle throb within. But how long I cannot tell, ere Heaven's flowers and angel sister's songs will break the spell, and charm the hoofs and snout into human form. If you would save the fruit and enhance your farm crops, protect the birds; and, if you would refine, cherish a love for them, and impress the same upon your children.

Seedling Potatoes.--The "Idaho."

By W. H. W., Hartford Co., Conn.

For a number of years past there seems to have been a sort of strife among professional and amateur cultivators to see who could produce the greatest number of new varieties of potatoes, and this competition has caused, in some instances, a wild excitement and fever throughout communities, resulting in giving the public a large number of different varieties, some good, some indifferent, and others poor, not proving equal to their first local promise. A new seedling of any kind, fruit or vegetable, should not be offered to the public till it has been impartially tried in different sections, and wide localities. A seedling may prove all that heart could desire in one locality, be indifferently good in another, and worthless in still another.

When a new variety is produced, the propagation or multiplication of it should be healthy, never crowded, which latter is too apt to be the case, and by the time it is fairly disseminated it begins to loose quality in some respect. The Early Rose was a first class potato, but it has partially lost its prestige, and in many localities will soon be discarded for something else. Forcing and injudicious culture have undoubtedly conduced more largely to this result than any other one cause. Why, when we get a promising seedling of any kind, can it not be multiplied with regard to the laws of health, etc.? Is it because we are of such a grasping nature, in too much of a hurry to be rich? We now have some new varieties of seedlings presented to us which we hope, the height of the fever being past, may be disseminated and multiplied somewhat more rationally, and that they may prove as hardy, prolific, and of as good quality otherwheres as where already tried. The best and most promising variety that is now before the public for a trial I think will be found the "Idaho." This potato originated from the seed of the "Garnet Chili" in 1866, has been tried in both the Eastern and some of the Western States, and so far has given the most promising results in all respects. They are a *white* potato, of the smoothest and fairest kind; nearly round, with few eyes and scarcely sunken; grow to a large size; boil or cook through alike without any core or watery center; and as to flavor, none could be better; they equal if not excel, any potato for eating I ever eat. The vines grow to a medium size, healthy and of a beautiful green color. The only objection, if objection it can be, that can be raised against them, is they are not an early potato but require about four months to mature from time of planting; they will bear manuring and do the better for it. From twenty-two single eyes I grew one and one-fourth bushels last season, most of them of eating size, only a few below table size. With this I will send a sample small one for the Editor of the Pomologist to examine and try.

Leading Varieties of Peaches—Descriptive List.

The following are the leading varieties of peaches, as sold in our fruit markets. Among the most popular and bringing the highest prices, is the Reeves' Favorite, a very large and beautiful peach.

LARGE EARLY YORK.

Hale's Early.—This peach is the first to ripen. The fruit is medium size, nearly round, skin mottled red, flesh white, juicy and high flavored, but rots badly.

Troth's Early Red.—This peach, which is small, round and red, is ready for the market about the time that Hale's Early is nearly gone.

Large Early York.—A variety known among growers by many names, among which are New Rareripe, Honest John, Walter's Early, etc. The fruit is above medium, skin whitish, dotted with red, flesh white, very juicy and good flavor. Season about the middle of August.

Crawford's Early.—It is of the yellow-fleshed variety, large, generally oblong, but variable as to shape; skin yellow, with red cheek; the fruit is juicy and slightly acid. It is a freestone.

Yellow Rareripe.—This variety, also a freestone, ripens nearly at the same time as the Crawford's Early, and is much esteemed for its flavor; the fruit is large, skin orange yellow, with rich, red cheek; the flesh is yellow, but red at the stone.

Old Mixon Freestone.—This peach grows large, with a pale skin, flesh white, tender, and very rich.

Reeves' Favorite.—An excellent variety, the fruit being large, the skin yellow with a red cheek; the flesh is a deep yellow, but red at the stone; the flavor is rich.

Stump the World.—The flesh is white, red cheek and rich flavor. It closely resembles the Old Mixon freestone.

Crawford's Late.—Many think this peach to be the best of any grown, not only for its beautiful appearance, but the richness of its flavor. The skin is large, roundish, with shallow suture; the skin yellow with dark-red cheek; ripens from the first to the last of September.

Ward's Late Free.—A fine white-fleshed freestone peach, skin white, with crimson cheek; flesh white, and slightly red at the stone, and excellent flavor.

Smock.—This variety of freestone peach is well known for its productiveness and value as a market peach. It is also a favorite for pickling, preserves, etc. The fruit is oblong; skin light yellow, mottled with red; flesh yellow, but red at the stone; season last of August and first of September.

Heath.—A clingstone variety of delicious flavor, which generally closes the season, coming to market as late as October. The fruit is oblong; skin whitish, but slightly tinged with red when ripened in exposed places.—*Horticulturist.*

The Culture of Almonds.

They are grafted or budded on the peach or almond stock. The seed will not produce the same kind. To sprout the seed, lay down boards on the ground, cover with an inch of sand, spread on a layer of almonds, then an inch of sand; keep them wet, and in three weeks of warm weather they burst open. Plant in drills one inch deep and put a light coat of rotten straw over them. Graft in February and bud in September or October.

One hundred trees may be put on an acre. At three years from the bud they will produce fruit, but not much. Corn or beans may be cultivated among the trees, leaving four feet about each tree. No weeds or grain should be allowed in an orchard. After giving shape to the top, very little pruning is required. After the third year simply cultivate the ground, and the almonds will pay. The use of the land is not lost while they are gaowing. If hogs and corn can be brought from Iowa and sold in San Francisco, it will pay to raise corn here. Growing corn protects the trees from the wind, and makes it grow tall and straight. After the third year the yield will increase very rapidly. At six years old $500 per acre may be looked for.

The duty on almonds will pay for producing them here; hence Europe cannot compete with California in supplying the Eastern market; nor will the price decline much while they are imported. They are now worth more in New York than in San Francisco. The net profit of supplying the United States with almonds would be equal to one-fourth of the net profits arising from our wheat crop.—*Pacific Rural Press.*

Grapes for Wine—The True Policy of Vineyard Proprietors.

The production of grapes and wine has become an important interest in America. Growing grapes for market is still pursued with profit, and probably will be for years to come, especially in those localities which are within reasonable proximity to the markets. But a national enthusiasm is being awakened on the subject of American wines, and a few years will suffice to make the wine-cellar the indispensible accessory to every successful vineyard. In other words, with a largely increasing extent of vineyard property, grapes must be grown for wine, if the wine-grower is to realize the best results from his investments, care and labor.

Already the wine of this country, by reason of increased production, has fallen fifty per cent in price, and that within a few years. Good, palatable wines of some varieties, eighteen months old, can be bought from the manufacturers as low as $1.25 per gallon, and I have known packages to be sold at even lower figures. Even these prices cannot be always maintained, and within the next ten years I am confident that even seventy-five cents per gallon will purchase good, pure, light wines by the cask at the wine-cellars.

With this fact, even possible, it behooves vineyard proprietors who shall manufacture wine to lessen the cost of their product as much as possible, in order that their rewards shall be adequate to their investment. And, as the varieties of grapes to be planted are an important consideration, I am confident that in this respect many vine planters are making mistakes, which they will ultimately discover and regret.

The must or juice of the grape, as it runs from the press, is composed of water, sugar and certain acids. The acids give to the wine the qualities known as flavor, aroma and bouquet. It is the sugar which, by fermentation, produces the alcohol; and hence, the more sugar there is in the must the greater will be the alcoholic strength of the wine. Therefore it is the ability of the grape to secrete sugar, supposing the variety to be hardy and productive, which should first engage the attention of the vineyard owner in planting, for the purposes of wine production; for unless it secretes sufficient sugar to furnish the proper proportion of alcohol, then sugar made from other vegetable growths must be added to bring the product up to the alcoholic standard of good wine. By this process only can wines be successfully made from grapes which are not naturally adapted to that product; and in the production of not a few varieties of American wines sugar is added in proportions, varying from a half pound to two pounds to the gallon of must, to give the product the alcoholic strength of even dry wines, not to mention the increased quantity required to make the so-called wines sweetened to insipidity to suit the uncultivated American taste.

But sugar costs money; and until sugar planters and refiners shall organize and conduct their pursuits on the principles of broad philanthropy (which day is indefinitely postponed), the consumer must continue to pay cash therefor. To add it to the must enhances the cost of every gallon of wine from eight to thirty cents. At the present prices realized for wines, this increased cost can be borne; but take fifty cents a gallon from the prices realized by the producer, and the margin for profit is largely reduced.

I have been led into this train of thought more especially by reasons of observations in South and North Carolina, having passed more than six months in those States during the last and the present year, and having been afforded opportunities to taste the native wines produced there, in considerable variety, and to learn the processes of manufacture. The Scuppernong is the variety which stands in the highest favor, and many hundreds, if not thousands, of acres have been planted with it since the close of the war. The vine is certainly vigorous, is of rampant growth and is productive. It requires but little care, and usually receives much less than it requires. The wine made from it is pure in flavor and "smooth;" but as the must lacks in sugar, the wine naturally produced is deficient in alcohol, and hence wine-makers have learned that cane-sugar must be added to make the product saleable even as a dry wine, while to the average Southern palate more sugar is essential, and the addition of a little corn whisky is with them no insuperable objection to the "wine." And with a pound or two of sugar added to each gallon of must, it is easy

to see that in the era of cheap wines the Scuppernong wine-makers will not be able to compete with those whose product has the necessary alcoholic strength from the natural secretion of sugar in the grape.

What, then, is the course for the Southern vineyard owner to pursue? It may be that there are varieties of the Scuppernong family which are equally hardy and productive, the fruit of which produces all the sugar required for an excellent wine. But if not, when we consider that of our sweetest grapes the Delaware, Iona and Walter trace their parentage back to the wild Fox grape, and that the Virginia Seedling and Clinton are children of the Frost grape, and that neither the Fox nor the Frost grape are naturally sweet, it is easy to see what might well result from continued experiment in planting the seeds of the Scuppernong. Indeed, looking at Europe, where, in the south, the sweetest grapes and consequently those of the greatest alcoholic strength are found, it is reasonable to believe that in the fruition of grapes and wine, as a branch of national industry in this country, the same rule will hold good, and our Southern wines will be characterized by greater body and strength, and our Northern wines by the greater fragrance,delicacy and bouquet.

What I have here written will apply to many of our Northern varieties, which by the zeal of their originators or disseminators are pushed on the market as wine grapes. No man in America, at this day, need be deceived upon this point. Several elementary works on wine-making treat of the chemical constituents of the must so fully that grape-growers need not be ignorant of what they are and what their proportions should be. Then the inventive genius of Mr. Twitchell, of Cincinnati, has produced scales which will accurately determine the proportions of those elements in any given sample, with a little reading and the expenditure of a few dollars every vineyard proprietor may come to an intelligent conclusion as to the value of any grape for wine, which has the other requisite qualities of hardiness and productiveness. And with the experience of others, and the aid of scientific appliances at his disposal, he who shall hereafter plant vineyards with varieties unfitted for the profitable production of wine, will have sinned against light and must pay the penalty of a diminished profit.— *Edward F. Underhill, in Ruralist.*

The Rose — Its Propagation and Culture.

By J. Cochrane, Havana, Ill.

"When the cold frosts are nipping earth's beauty and bloom,
And Autumn is gathering the flowers to their tomb,
We may sigh o'er their exit, and drop a sad tear —
Soon, decked in new beauty, in Spring they'll be here."

To travel the journey of life and the world destitute of flowers would not be unlike a voyage on the mythological Lake Avurnus, with the god Charon as helmsman and pilot through its fabled unnavigable waters. Rob June of her roses, Summer generally of her flowers, the earth's jewelry — would be like taking the period of innocent, joyous childhood from human life, leaving the balance not worth the cost — not worth living for.

Soil. — Roses will succeed in any good garden soil; but, to have them in perfection, the soil must be well enriched and deeply dug. The rose, like the vine and many other things, is a gross feeder, and is improved by heavy manuring. In a poor, lean soil, it is impossible to bring out the beauties of any variety. A rich, strong vegetable mould, with about one fourth its bulk of well rotted stable manure, is a standard soil for the rose. My own experience is, the richer the soil, the better the bloom.

Situation. — The rose will flourish in any situation, where the soil is prepared; but it is best, if it can be shaded from the intensity of the mid-day sun. If it can be so situated as to receive the morning and evening sun, the bloom will be more perfect and last longer. Some varieties are very tender, and are almost ruined by a full exposure. Roses should not, however, be entirely shaded.

Planting. — The best season for planting hardy roses is in the autumn; or, if deferred until spring, it should be done very early. If done late in the spring, they should be cut back to a few buds. Any time after the first severe frosts is a proper time to commence

transplanting. A young, healthy plant is better than an old one to plant out. Old plants should be rejected, as they will reward the cultivator with disappointment only.

Pruning, in this climate, should be done only in early spring. All the old wood, and the weak growths of last year, should be taken away. The strong, young wood produces the finest flowers. In pruning climbing roses, retain the whole length of the young wood and most vigorous shoots, cutting away those which are not likely to bloom.

Budded Roses are not as desirable as those on their own roots. The buds are liable to death and accident, leaving only the comparatively worthless stalks.

Classification cannot be treated on in an article like this, necessarily brief; but I would refer the reader, not to "Harris on the Pig," but to "Parsons on the Rose." The latter "subject," though having less, has the more agreeable fragrance. We cannot remember to have ever seen a rose that was not beautiful and worthy of cultivation, whether it were the stately Queen of the Prairie, the blushing Damask, the modest and fragrant Tea, or the unique and strangely-marked York and Lancaster. Each have their merits; all should be grown.

The rose ever awakens poetical aspirations, and some of the finest effusions of our language are the offspring of this feeling, which has not been peculiar to any age or people.

> "All Eden bright
> With these her holy offspring, creations of the light,
> As though some gentle angel, commissioned love to bear,
> Had wandered o'er the greensward and left his footprints there."

Hale's Early Peach.

A correspondent of *Our Home Journal*, writing from Tangipahoa, La., says: "Not until recently was I aware that there were two 'Hale's Early.' But, on looking over J. H. Plattman's descriptive catalogue, I find it is so; he describes one ripening ten days earlier than the older varieties. The tree vigorous and healthy; an early and abundant bearer; fruit medium size, skin clear, smooth, white, delicately marbled with bright red cheek; the flavor good. This description agrees with the Hale's that I have seen fruited in 1867, and up to this time I could not see any fault in it. Mr. Plattman describes Hale's Early raised in Ohio, fruit medium size, flesh white, first quality; ripens earlier than the Early York. The serrate Early York will ripen in this district from the tenth to the fifteenth of June, according to the season.

The question is, which of the two is the humbug? There is not the least doubt but one of the two is badly represented. This is a question of importance to those of the North as well as the South; and, as the planting season is drawing nigh, it would be well for our pomological and horticultural friends to determine which of the two is the grand humbug. The pomology of the South is greatly confused and tangled up and needs special attention. There is no doubt but a great deal of wealth can accrue from the cultivation of fruit in the future in the South.

I will make a few remarks in regard to Hale's Early: I have seen it bear fine crops on light, warm, sandy hill-sides. And if planted at all it should not be planted in low or rich soil; as it will rot. I have tried shortening-in the naked terminal shoots when the fruit was formed, and found it to be of great advantage. The past season it commenced to ripen the twenty-eighth of May; and all the fruit was perfectly sound. The location alluded to, where the trees are planted, is a hill-side—a mixture of red clay and sand is the nature of the soil. The localities that I have seen it do well in are in South Mississippi. My experience runs no further, and I think it valuable for light, gravelly and hilly land, and for its early bearing qualities. The past season, owing to the continuous rains up to the first of July, in Mississippi, only a few of the late varieties ripened or perfected their fruit. Whether to strike it off the list of early varieties, is only for those that are thoroughly acquainted with pomology and the various soils of the South to determine.

Troth's Early is a poor bearer, and I think it would not be advisable to plant to any extent. Early Barnard is a splendid market peach; ripens early and of a good size. This seems to do well in all parts of Mississippi.

The Pecan Tree.--Its Value and How Grown.

V. P. Richmond, of Madison county, Ill., writes to an Eastern paper in regard to this tree and its fruit:

"It will grow in any soil where white hickory, butternut or pignut will grow, but it is a native of rich, alluvial soils, such as the river bottoms of the Mississippi, Missouri and Illinois. The point of land between the Mississippi and Missouri rivers grows very fine specimens, some fifty and sixty feet to the limbs. Its general appearance very much resembles the white hickory in leaf, wood and bark, excepting the bark is thicker and softer. I have seen half of trunks of forty feet in length with no perceptible wind. The wood is good for any purpose where the hickory can be used. It is found growing on the Illinois river above Peoria.

I have trees growing on my farm from the nuts. I planted the nuts in the early part of winter, some two inches deep, in light, rich soil. I think all came up about mid-summer. Thinking there might be a tap root as in hickory, I passed a sharp spade under each root about six inches from the crown. When one year old, I set out four trees—all grew; three finely, one met with an accident; and gave away a number of which I can give no account. Two remained in the bed. Those removed have made more than double the growth of those remaining in the bed, which I attribute to the difference in soil. The bed was where the clay was only a few inches from the surface; and where the trees were set the black soil was over two feet deep. The nuts were planted in 1847, and first fruited four years ago. They will vary in coming into bearing about five years, owing to location and depth of soil, some beginning in fifteen years' growth.

I think the pecan may be grown in any latitude where the chestnut will grow, but not on the same soil. It is a beautiful tree, grows very straight, upright and symmetrical, and I would advise planting as an ornamental tree. From my experience, I think they bear transplanting better than the chestnut, and as well as any nut-bearing tree. I presume it is necessary to plant seed of the present years' growths.

The Raspberry—How to Grow Extra Fine Fruit.

By A. L. Hatch, Ithaca, Wis.

Soil.—Raspberries succeed best on rich, loose, black soils and not too dry. Maintain the fertility and secure the moisture by liberal mulching, especially while the fruit is growing. If plants are in very rich soil, grow luxuriantly, but bear none, apply ashes early in the spring in reasonable quantities and mix well through the soil. This will tend to induce fruitfulness.

Shade.—The best berries, especially of black caps, are grown in the shade. This can be partly secured by the following plan: Set plants three or four feet apart in rows extending north and south. Set stakes four feet high between the plants in the rows. Tie the bearing canes rather low to the stake on the north side of the plant. The new shoots will grow up on the south side and will partly shade the fruiting canes.

A New Method.—This is my way for extra fine fruit, and I would especially commend it to amateurs. Set plants two feet apart in rows extending north and south. Give good culture so as to grow strong canes and get the plants well established the first summer. In the fall cut off all the canes from every other plant, leaving stubs three or four inches long only. Protect the plants with a fork full or two of coarse barnyard litter. Next summer give the entire energies of these plants to growing new fruit canes to fruit the *next* summer after. When the new shoots or canes are two feet or so high, pinch the ends to make them grow stocky. Some canes may bloom and bear fruit in the fall. Such bloom should be removed, as the object is to develop the canes for full fruitage the third summer. The half of the plants not cut back will fruit the second summer. And no new canes should be allowed to grow then. The plan is to have double the plants usually grown on the same ground, one-half growing canes but no fruit, the other half growing fruit but no canes. The result in fruit is wonderful.

Persimmons.

It is well known that we have growing all over our Southern States the native persimmon, *Diospyros Virginiana*. It is also found as far North as central Ohio, and in Indiana and Illinois. The fruit, we also know, is acrid, astringent and unpleasant — indeed, not palatable until frost has, in a measure, perfected it, and then it is not only healthful but agreeable to many, and becomes quite a pleasant, if not delicate fruit. It may be safely said that "the niggers" all like it, if not fatten on it.

It seems, then, quite remarkable that this fruit, so predominant, has not been improved and is not more fully appreciated. That it may be greatly improved, and is both a healthful and valuable fruit, cannot be doubted.

In Japan, it is, unexceptionably, the finest and most valued of fruits. The people use it as freely as we do the peach, and in almost as great a variety of ways. At all seasons of the year they may be bought preserved in the same manner as Smyrna figs, and looking not unlike them, and everywhere enter largely into the domestic economy, as well as internal commerce of the people. It has been crossed and grafted in and recrossed until it is to Japan what the apple is to America; and, in its season, is incomparably the best and most useful fruit in that country. We have seen the fruit, in bearing, as large as ordinary oranges; the variety, too, is remarkable, though but two varieties, to us, seem specially desirable for cultivation here.

The first is a large, round-shaped fruit like an old-fashioned Rhode Island Greening apple — hard-fleshed, and is mostly eaten as one eats an apple, having many of its characteristics. Its color is rich golden, and the meat juicy, vinous and firm. It ripens in November and keeps well until March. We have seen them three to four inches in diameter, and we think it in all respects a most delicate and splendid fruit, very desirable to introduce into Georgia, South Carolina, Florida, and part of Alabama, Mississippi and Texas.

The second variety is more oblong than round, resembling in its shape almost exactly a minnie rifle ball. This is of a deeper, darker shade than the other; soft, sweet and custard-like, and is usually eaten with a spoon as one eats a custard. These we have frequently seen as large as an ordinary sized tea cup — say two to two and a half inches in diameter, and from point to top, from three to three and a half inches. This fruit ripens the last two weeks in October, and is the variety mostly dried and prepared like figs for market. It is a delicate fruit and very much liked by those who are fond of sweet fruits. It keeps until Christmas.

Besides these there are many other varieties which, if introduced and grown here successfully, might be highly desirable — perhaps an invaluable acquisition to pomology and the country at large.

We beg to commend this recommendation to your horticultural friends, and unhesitatingly predict for both these fruits the endorsement of all we may say in praise of them.— *Cor. Farmer and Gardener.*

English Walnuts.—The Los Angeles *Star* says: "The first English walnuts were planted in Los Angeles county, in 1857. They commenced bearing in three years, the crop increasing every year. In the year 1863 the crop amounted to 9,200 pounds. Previous to 1860 the walnuts used in California were all imported from China and Chili, to the amount of 30,000 pounds annually. The flavor of the Los Angeles walnuts is finer than that of the imported nuts."

Growing Peanuts—Varieties.—The New York *Standard* dwells learnedly upon peanuts. First as to varieties: "There is the African peanut, the Georgia peanut, the North Carolina peanut, the Tennessee peanut, and the Virginia peanut. Their qualities improve in the order in which they are here set down, the first being the poorest, and the last the best. If you want peanuts, see that you get the sort coming from the old Dominion."

Notes on Pears.

By Isaac Brandt, Des Moines, Iowa.

Thinking that a brief statement of my pear crop for the year 1871 from my little orchard, might be a matter of interest to the readers of the Pomologist and Gardener, and especially to those who are about to plant, I drop you the following notes. My trees are upon a heavy, clay sub-soil, surface sloping gradually to the east

Bartlett. Bore finely, fruit larger than usual. One tree damaged slightly by blight.

Flemish Beauty. Fruited well, and fruit very large, some specimens weighing fourteen, and as high as fifteen ounces. Tree a very rapid grower.

Buffum. Very full—so much so that the fruit was below medium size. Tree a slow grower.

Napoleon. Fruited moderately well. Fruit quite large. Tree a moderate grower.

Sheldon. Not very full, but fruit splendid. Tree a fine grower, beautiful shape, and very hardy.

Seckel. Fruited moderately well, fruit very fine. Tree a slow but sure grower.

Tyson. Fine, vigorous grower, but tardy about bearing.

All these trees have been planted eight years. Most of them have given me some fruit every year for six years.

Osbond's Summer. Tree very similar to the Seckel, but shy bearer.

Beurre Diel. A fine, vigorous grower, but very tardy in coming into bearing.

Beurre Cairgeau. Tree a good grower and fruits well, but in my estimation of very poor quality.

I have a few trees that have been planted four years, that are doing finely, both in growth and fruiting. I will mention four varieties that I esteem very highly.

Dearborn's Seedling. Has borne fruit from the second year from transplanting. Fruit small, but superior to any pear I have ever tasted. Season, middle of August.

Stevens' Genessee. Tree very rapid grower, fair bearer. Fruit a little larger than the Bartlett, and of excellent flavor. Season, about the first of October.

Clapp's Favorite. Tree a fine grower, bears well. Fruit medium size. Flavor similar to Flemish Beauty.

Madeline is my earliest pear. Tree a poor grower, fruits very early, tries to die every year, yet makes a live of it. Fruit ripens about the fourth of July.

My Bartlett tree on the White Thorn is still living and doing well; was affected last year a little with the blight. It is now thirteen years since the graft was set, and it has given me a crop of fruit annually for the last nine years—some years the crop being immense for a tree of its size.

Grapes—Seventy-five Pounds of Fruit on a Yearling Graft.

The California Agriculturist says: "Our friend D. C. Feeley has presented us with a box of the finest grapes that we have ever seen, from his vineyard on the Santa Cruz mountains. They were of the Flaming Tokay, White Muscat of Alexandria and Rose of Peru varieties. The berries of the two former sorts would average three inches in circumference. The quality was unsurpassed, as every one testing them agreed. Mr. Feeley exhibited, at the Farmers' Club Fair in Santa Cruz, on a single graft of the Flaming Tokay, grafted in 1870, seventy-five pounds of grapes. This is remarkable. Mr. F. is not qualmish upon the subject of wine making, but he is, nevertheless, grafting all his so-called wine grape vines with the three varieties above mentioned, simply for the profit of the thing. Like many others, he finds the business of wine making a poor one compared with the profits of best table and raisin grapes, for home and Eastern markets. One cent per pound has been the general price for wine grapes in this valley this season, while table and raisin grapes have readily sold for from four to eight cents in the vineyards. Even if the *profits* were in favor of the wine, to the producer, the difference to the consumer would make the wine grape entirely unworthy of cultivation by any conscientious man that loves his neighbor as himself.

Mustiness in Wine Cellars.

Although pure air, a uniform low temperature and moderate dampness are the requisites of a good cellar, these properties cannot always be combined, especially in wine cellars, which often remain closed for a long while, as for instance in vineyards, or in such places where the humidity of the soil cannot be overcome; the consequences are, that fungi are formed, which cover the exterior of the casks, and others which grow along the floor and beams, and at times also such as grow on the walls and roofs of the vaults, and threaten destruction to all objects with which they come in contact, besides vitiating the air of the cellars.

In such cellars, not only the casks, but also the wine contained in them, are liable to be destroyed, and it is not advisable to begin the treatment of the wine before the air has been thoroughly purified, so that the germs which float in the air, and which the microscope has shown us, when converted into fungi, to be the cause of many of the diseases of wine, do not obtain access to it.

Since the careful removal of these fungi is absolutely necessary, without enumerating here all the different methods applied to accomplish this end, we shou'd like to recommend a process which is at once simple and cheap, to prevent the development of mustiness and its injurious effect on wines as much as possible, and that is, to create sulphurous fumes in the cellar.

This is done by burning in crucibles, in different parts of the cellar, strips of sulphur, and closing the doors as effectually as possible from the outside.

The fumes which are thereby developed, which can have no access to the wine if the casks are well bunged up, perform approximately the same service which the burning of sulphur strips in a mouldy cask does for its preservation; that is, they destroy in the air of the cellar the renewed formations of the germs of mustiness and fungi.

This process may be frequently repeated to advantage, more particularly before manipulating wines, as for instance, drawing them off, and again before closing the cellar for any length of time.

This method will also effectually destroy all vermin which may infest the cellars. — *From the German of G. Beyer.*

Grapes in Arkansas.

A correspondent of the *Rural World* writes from Van Buren, Arkansas: "There are about six acres of vines bearing in the vicinity of Van Buren, planted with about twenty-varieties, and as I have never seen any report from that section of country in the *Grape Culturist*, I will try and furnish some brief notes of their habits there. Concord and Clinton do well, grow very strong, and bear well; but little subject to rot. Creveling grows well, but rots considerably. Delaware seems to be at home, grows as well as Clinton does here; is very prolific and sure as it never rots; berries seem to be much larger than here. Diana rots and mildews badly. Hartford a little subject to rot, and frequently drops its berries. Herbemont is the strongest grower of all; I have seen two-year-old vines which made two canes of fifteen to twenty-five feet long, and canes measuring an inch in diameter up to half its length, with laterals from almost every joint of canes, which would by itself pass for good sized canes; it is somewhat subject to rot there. Ives does well, but Iona rots badly. Norton's does well, never rots nor mildews; grows vigorously, and bears abundantly. North Carolina Seedling is a good, healthy grower, prolific, and but little subject to disease. Marion a good grower, and does well. Pœschel's Mammoth is a good grower, but liable to rot. Rogers' No. 2 and Wilder good growers, abundant bearers, but rot some in unfavorable seasons. Agawam, To Kalon and Union Village all rot badly. Black Hamburg does well in some places, and the Riesling, two years old, imported from Europe, made a good growth, and appears healthy. Gutedel (Chasselas) also grows strong and vigorous. Perkins, Israella and Rebecca also grew strong and vigorous. I believe most of the rot is caused by improper pruning and trimming. Soil, sandy loam."

Hints on Gardening.--How to Have Early Vegetables.

By C. Bradley, Nauvoo, Ill.

I propose to say a few words upon gardens and gardening, and when I speak of gardens I mean such as every farmer in the land and nearly every citizen of every village or small town in the whole of this Western World, may have without infringing upon those (so-called) more important avocations of daily life. In this article I say nothing of Hot Beds or Green Houses. These are important for professional gardeners and nurserymen, but are not necessary for the common every day vegetable garden. In order that I may be better understood as to what I refer, I will give a brief description of my own little "patch," which I have cultivated for five years, and has answered me as a nursery for small seedlings, a strawberry patch, an arboretum, and a most excellent vegetable and fruit garden.

This garden lot is 120 feet by 56 feet, with one corner 48 by 20 taken off for stable, henhouse and pig pen. On this there are six cherry trees, four plum trees, two pear trees, six peach trees, two apple trees, thirty currant bushes, twelve gooseberry bushes, fifteen grape vines, one persimmon tree three years old, eight feet high, and several small ones one year old, fifty seedling peach trees one year old, rhubarb and asparagus, six ozier willows, and on the north side of the south fence, a row of the Red Antwerp raspberries one hundred feet in length; and in addition to the above I have the *Bradley Nauvoo Seedling Strawberry* on the ground where it originated, the Jucunda and the Russell. The small fruits have all done well—all we needed for current use, a plenty for canning, and some to give to our neighbors. Now as to vegetables, as our patch is small and pretty well covered with fruit, of course we do not raise vegetables in large quantities, but always have plenty and to spare, and of the best quality.

The soil is the deep, rich alluvial of the Mississippi River bottom, and this well manured. As soon as the frost is out of the ground and the weather favorable, I fork up a bed twelve inches deep, along the south side of my north fence, and sow or plant beets, lettuce and radishes, all together in the same bed. The radishes soon come to a good size and are used; the lettuce is thinned out as soon as it will do to use, and the greater part of the beets are taken up and set on the borders of other beds, leaving enough on the ground to grow and ripen after everything else is taken off. In this way I have always succeeded in having plenty of beets from three to four inches in diameter by the 4th of July. These and peas and onions are planted in March, and generally have some cold and freezing weather on them, but it does not kill them—only puts them back a little. I sow my parsnips in the winter broadcast all over the garden; they come early and in great abundance. What I don't want are easily hoed up, or if they are in the wrong place I transplant them; in this way they grow large—weighing from three to seven pounds. I have one now in my cellar fifteen inches in circumference, two feet long, weighing seven pounds; the rest of the crop is in the ground yet. For early potatoes I start them in March, in a box by the cook stove. Cut them into one or two eyes, let them dry two or three days, then lay them in as close as they will lay in good, rich soil; cover them with the same kind and set them in a warm place. When the tops appear above ground they may require a little water occasionally, but not much. In bright, clear weather, set the box out in the open air on the sunny side, in the middle of the day, taking in at night. Have the ground well prepared a day or two before planting. When the plants are six inches long they will be well rooted. Set them out leaving about an inch above ground, in the evening cover with straw or litter, which can be left on protecting them from the cold. In this way you will have plenty of potatoes large and fine by the 5th to the 10th of June. Sweet corn should be planted early in April, and if it is an early kind and has been well tended, you will have green corn on the table early in June. Peas should be planted in rich mellow soil, three to four inches deep, and the ground well stirred with a rake before they come up, and stirred often afterwards, and you can eat green peas at an early day. Tomatoes require the richest and warmest soil and good care. Set the plants six inches deep, leaving the top bud above ground. Don't wait for them "to get big

enough to hoe," but stir the ground often at the start, and before they fall down trellis them up on all sides so that the vines and fruit may have something to rest on, and if you have a good kind you can take at least half a bushel from every plant. The great secret of success is in keeping the ground mellow and loose, so that *not a weed* is allowed to grow on the ground, and as soon as a hill of beans, a stalk of corn, or any other plant has done its duty, pull it up, use it for mulching other plants, and take the ground for another crop. In this way you can raise two or three crops a year all over your garden.

The Stannard Apple—Stark.

I find in Warder's *American Pomology* the following concerning this apple and the tree: "This proves one of the most profitable winter apples; the tree bears young and constantly, but fuller on alternate years; fruit large and showy; shoots large and downy; buds prominent, fruit buds large and the earliest in the orchard to swell; but they do not open as soon as the others. Tree spreading, trunk generally crooked; very hardy."

When I was at Mr. M. L. Dunlap's, Champagne, Ill., I found he had many trees of this variety in profitable bearing, and also that the tree was hardy *there.* I am not alone in believing that several sorts of the apple, grape and other fruits that do well on the level clayey soils of Central and North Central Illinois, will do as well or better here, where we have much better natural drainage and a more even temperature.

Seeing Mr. Dunlap's strong recommendation of the Stannard for hardiness, I procured some cions, and they wintered very well, as root graft stocks last winter and this, being uninjured so far by cold or otherwise.

The stock also made a good growth last summer, growing as large as Ben Davis or Transcendent, with me, on a *rather light soil.* I believe the tree of the Stannard apple to be quite hardy here in the north, and have so written to others, and the Prairie Farmer people seemed to appreciate the fruit when they received a barrel as a Christmas treat a year ago. — J. W. C., *Green Lake Co., Wis.*

Flowers.--Selection, Soil and Culture.

By J. Cochrane, Havana, Ill.

Flowers, in the beauty and perfection to which they are capable of being brought, will not grow spontaneously, like weeds, in the garden or elsewhere. The seed must be sown, and proper attention bestowed on the plants. Many who fail attribute such failure to bad seed, when they should charge themselves with want of skill and care.

Selection is of the first importance—the place and soil in which they are to grow, and the purposes you wish them to serve. If you desire a show of bedded flowers, select Phlox Drummondii, Candytuft, Petunias, Verbenas, etc. For tall, showy groups, choose Zinnias, Calliopsis, Marigolds, Balsams, Poppies, etc. If you want dwarf borders, take Sanvatalia, Sweet Alyssum, etc. If fragrance is desired, Mignonette, Sweet Pea, Sweet Alyssum, Stocks, etc. For expression, the Pansy has no rival. Leaf colors are secured in Amaranthus, Perilla, Coleus, etc. Tropical foliage is gained in Ricinus, Cannas, Heracleum, etc. When mixed beds are desired, the tallest flowers should occupy the center, and the lower varieties toward the margin, in careful gradation.

Preparation.—Most flowers flourish best in sandy loam, enriched with well rotten manure. Such soils do not bake but remain alluvial and porous. This not only gives immediate nourishment to the young plant, but secures vigor, beauty, perfection in the matured stem and flower. If your garden soil is stiff and heavy, dress it with sand and manure; the result will pay. Before sowing seeds in any soil have it thoroughly pulverized, even if you have to throw a half-foot depth of it into a feed-mill and grind it. This necessity—a fine soil—should never be overlooked.

Sowing—unless in a hot-bed—should be only after warmth and dryness have been imparted to the soil in the spring, or most seeds are apt to perish. When the soil will spade up mellow, showing that the frost is all out and the ground settled, it is in good condition. Sow fine seed on the surface, press evenly with a board—if covered too deep it will perish. Hardy plants may be sown earlier than half-hardy, and more tender varieties.

Peerless Potatoes.

In the February number of the POMOLOGIST AND GARDENER is an article by S. J. Parker, on the Peerless Potato, giving the bright side of the question, and hitting growlers of Connecticut and elsewhere. In order to duly estimate the true value of any vegetable or grain, we should have both sides of the question — its bad qualities as well as its good ones. A potato may be good in New York and not in Iowa. And I think such is the case with the Peerless. I have tried it two years in Iowa, and I pronounce it of poor quality — soggy and of poor flavor — far inferior to the Peachblow. If its quality was first-rate, I would rather have it than any other variety I ever tried. I think soil has much to do with the quality of potatoes.

Many varieties raised in the sandy and clayey soils of the east and said to be number one in quality, when brought west and planted in our prairie soils, prove to be of very poor quality. The Harrison, Prince Albert and Early Goodrich have in turn been very highly praised in the east, but are generally of poor quality in prairie soils. And I think within five years the same verdict will be pronounced on the Peerless. I obtained my seed of James J. H. Gregory, Marblehead, Massachusetts, and think it is genuine.—E. E. B., *Onslow, Iowa.*

A Pretty way to Train a Fuchsia.

When a slip has grown seven or eight inches high, nip out the top down to the next set of leaves; it will then throw out branches on each side. Let these grow eight or ten inches, then nip out as before the tops of each branch when grown the same height as the others, then nip out again; then procure a stick the size of your finger, eighteen inches in length, take hoop skirt wire, twine back and forth alternately through holes made in the stick equal distances apart. Place this firmly in the pot back of the plant, tie the branches to it and you will have, when in flower, a beautiful and very graceful plant. Having one trained in that way last season, it was the admiration of all who saw it. — *Small Fruit Recorder.*

HOW TO RAISE CELERY.—A correspondent of the Journal of Agriculture says: "There is no need of a hot-bed for starting celery plants. In April, as soon as the ground can be thoroughly worked, sow your bed. Keep the weeds out and use a little patience, as celery is slow to make its appearance. To insure stocky plants the tops should be shorn off once or twice before transplanting. About the middle of June prepare thoroughly the plat of ground you desire the celery to grow upon; transplant in rows three feet apart, setting the plans five to six inches from each other in the row. The ground should be moist at the time of planting; if not, press the earth by the side of the plant, gently, with the foot. After this keep the weeds down and the ground mellow until August. During this month, for fall use, the blanching process should be commenced. To do this it is best to use the hoe in drawing the soil up against the plant, and then, with the hand, press close around each plant the soil, that the leaves may be held firmly in an upright position. Draw up more soil as a support and finish by breaking up, with the soil between the rows on each side, to the top of the plants. In this way the celery will be ready for the table in September."

RENOVATING QUINCE TREES.—I had in my garden several trees which for a number of years had never borne the value of one peck of fair quinces, and I had about made up my mind to destroy them, when a neighbor called on me and stated that his had been in a similar condition until he took them in hand. First he trimmed out all dead and useless wood. He then hoed and cleaned away all grass, etc., which tended to retard their growth giving to them clean cultivation. He then gave them a thorough manuring with fresh horse manure, and from that time his trees had never failed to produce a full crop. I accordingly adopted his course to the letter, and so long as I continued this course had an abundant supply, and of the finest quality.—*Small Fruit Recorder.*

Editor's Portfolio.

☞ The current number of the POMOLOGIST is issued at an earlier day in the month than usual — the fifteenth. It appears thus early for the benefit of our advertising patrons among Nurserymen and Seedsmen in their spring business.

THE STARK AND STANNARD APPLES.—By a strange oversight we have got the *Stark* and *Stannard* somewhat mixed. Our illustration and description of the Stark fruit is correct, but what is said of the tree and its origin should apply to the *Stannard*. We have never seen either of the trees, but suppose the fruit received from Mr. Gaston, and from which the illustration and description given were taken, to be the true *Stark*. We do not often get so intolerably befogged as in this matter.

Acknowledgment of Fruits and Plants.

From D. W. Adams, Waukon, Secretary of the State Horticultural Society, fruit of the *English Golden Russett*, with the following note of March 18th:

FRIEND MILLER: "I to-day send you by mail a specimen of the true *English Golden Russett*, of Elliott; *Golden Russett* of Barry and Downing and Thomas; *English Golden*, and *English Golden Russett* of Warder. The tree is very vigorous and hardy, and is easily distinguished by its peculiar speckled shoots. Orchard trees planted ten years ago at twenty-one feet apart, now touch together. If this variety was not subject to blight in rich soils, too much could not be said in its favor."

From D. P. Norton, Des Moines, fruit of the *Belmont*, of which Mr. N. remarks in a note, under date of March 19th:

MARK MILLER: "I inclose you a specimen of *Belmont* apple, taken from those shown by John Smith, at the Fair in this city last fall. Wherever grown and tested in this region, it proves a very great favorite, being a *great* bearer. Budded or top-worked on a hardy stock, I have no doubt it is a very desirable sort for general cultivation. I thought you might like to see a specimen kept over until this season. The best specimens generally have a blush on the side next the sun, which this one has not."

REMARKS. Both these apples are fine specimens of their sorts. We think the *English Golden* the finest looking of all the Russett family, and should not by any means be discarded because of its inclination to blight a little on too rich soil. We find the *Belmont* in a remarkable degree of preservation for the season.

From Ellwanger & Barry, Mt. Hope Nurseries, Rochester, N. Y., a plant of their new seedling Geranium, "*Pride of Mt. Hope*." We are sorry to say, however, that the plant came to hand through the mail hopelessly frosted.

Vick's Special Floral Prizes.

James Vick, of Rochester, N. Y., offers the following special and liberal prizes to his customers in Iowa, the awards to be made at the next State Fair, under the direction of the State Agricultural Society. The flowers put on exhibition for any one or more of the prizes offered must be grown from seeds that have been purchased of him. The judges are to be appointed in the usual manner. These prizes are liberal, and will no doubt add much to the attractions of the floral department of the next State Fair.

Cut Flowers.—Best and finest collection.... .....$20 00
Phlox Drummondii.—Best collection, 10 00
Asters.—Best collection... ..... 10 00
Balsams.—Best collection..... 10 00
Dianthus Family.—Best collection.. 10 00
Pansies.—Best collection..... 10 00
Stocks.—Best collection..... 10 00
Gladiolus.—Best collection..... 10 00
Everlasting Flowers and Grasses.—Best collection 10 00

FOR FLOWERS GROWN BY PERSONS UNDER 20 YEARS OF AGE.

Cut Flowers.—Best and finest collection.....$10 00
Phlox Drummondii.—Best collection, 5 00
Asters.—Best collection..... 5 00
Balsams.—Best collection..... 5 00
Dianthus Family.—Best collection... 5 00
Pansies.—Best collection..... $5 00
Stocks.—Best collection..... 5 00
Gladiolus—Best collection..... 5 00
Everlasting Flowers and Grasses.—Best collection..... 5 00

On Training the Vine.

In reply to J. E. Beach, Bridgeport, Conn., and others, on the best system of training the grape vine, we would simply remark, to discuss the subject fully would require several articles. We have prepared such with illustrations and they will be published as soon as the engravings are completed. In the meantime, we would suggest that there is but little difference amongst grape growers in training the vine the first and second years. It is after that time the particulars of each system commences, each advocate no doubt believing his method the best. Some say that different varieties require different training, as if there was no general system. Such theories have only a tendency to confuse the beginner, instead of instructing him. We do not agree with such opinions, but believe there is a general system, natural and easily understood, adapted to all *varieties* and *species*, except, perhaps, the Scuppernong (*Vitis Vulpina*). That system embraces the equal distribution of the sap and growth to the development and perfection of each part of the vine. This can only be secured by a *horizontal* training of the *bearing* and *annual renewal* canes. So each bud will be suitable for bearing fruit. All pinching and training must have those objects in view. That system which accomplishes this with the least labor, expense and exhaustion of the vine will be admitted to be the best. It is that we have endeavored to accomplish, and hope to be able to show in the series of articles forthcoming.

For the present time to lay the foundation of such a system, a permanent trellis should be erected about four feet high, with two wires, the first two feet from the ground and the other eighteen inches above it (of No. 9 wire, which we think the best and most durable); and the vines trained with arms horizontally on the wire, renewed each year, and the bearing shoots pinched back to the last or third bunch and leaf, and each lateral from the axils of the leaf pinched back the second time to one leaf, then let hang from the trellis without any support, to check the flow of sap towards the extremities. The renewal canes should also be pinched back and made lateral canes, with shorter joints, better matured and developed buds and firmer canes. — ASSOCIATE EDITOR.

Pears—Changing Dwarfs to Standards.

I intend planting quite a number of pear trees this spring, and am in doubt as to which would be the most suitable, or rather the most profitable, dwarfs or standards. This, as it is put, would seem a stupid question for an old pomologist to ask; but when the question is put, can I plant dwarfs, at half standard distances, and eventually turn them into standards, would be practicable or not? it will be plain. I know that some varieties take root from the pear much better than others, when wounded and the earth hilled up.

What I aim at is to get some fruit as soon as possible, but in the end to have larger trees than they make if kept on the quince stock alone. An answer to this by yourself or some of your subscribers will much oblige. — S. MILLER, *Bluffton, Mo.*

REMARKS. — As far as we have observed, there does not appear to be much difference in varieties as regards rooting from the pear, if planted several inches below the union with the quince. As a general thing we do not prefer the quince as a stock, and we doubt if any variety will be more profitable cultivated in that way, except, perhaps, the Duchess d'Angouleme. The Bartlett, we think, will bear equally as young on the pear as any variety on the quince and bring more money. It is very doubtful if pear culture is profitable anywhere, except on such soil as shaly clay land well drained, which may be indicated

by the success of the Catawba grape. So far as we have observed, here, the pear has been free from blight and disease on the same strata of soil where the Catawba has been free from rot and mildew. Perhaps some of our readers can give more particular and satisfactary information. — *Associate Editor.*

How to Treat Evergreen Seeds for Planting.

A correspondent of the POMOLOGIST AND GARDENER wishes to know how to treat evergreen seeds so as to insure their growth. He is informed that no soaking or other preparation previous to sowing is needed if the seed be fresh and good; if otherwise, I know no way to restore its vitality. More or less of the seed of the European Larch is always worthless, owing probably to a habit of abortion, as in the case in the Sugar Maple and Tulip tree. If kept a year after separation from the cones, none of it is of any value. Seeds of the Pines and Spruces retain their vitality longer, but are best if grown the year previous to sowing. The time of sowing is as early in spring as the soil is in good condition to work. The surface of the beds should have a mixture of sand, and be raked fine. The seeds should be covered not to exceed one fourth of an inch in depth, with fine sand or leaf mould and the surface pressed down with the back of a shovel or a light roller. Those who sow largely rake in the seed; but considerable skill is requisite to do this properly. It is best to mulch the beds lightly after sowing with leaves or prairie hay to keep the surface moist until the plants begin to appear, when it should be carefully taken off. Care should be taken that mice do not harbor near the beds, as they will devour many of the seeds. If properly sown there is little difficulty in making good seed vegetate. The *pinch* in raising evergreens from seed is in getting the plants through the first summer. If your correspondent wants information on that point he had better consult books which treat upon the subject.—ARTHUR BRYANT, *Princeton, Illinois.*

Guinea Hens vs. the Curculio.

At one of the meetings of our Horticultural Society the subject of small fruits was under discussion, and the plum came in for its share of praise, especially the Lombard, of which I have a number of trees. I had the past season enough plums set for five bushels if they had come to maturity, but that plum pest, the curculio, took them all. Some of the members claimed to have raised plums of this variety all right, and no curculio. Mr. Bouck advanced a new remedy for this pest, and claimed that in his hands it was a perfect success. There is no *patent* on it and no intricate machinery to wind up, or "barks" to turn over and kill, etc., *a la Michigan;* but it is simply the Guinea hen. He has a hundred, and claims his exemption from the ravages of bugs, etc., by their quick eye and motion. If further investigation demonstrates this as a fact, it certainly would pay to keep the "squakers" around, but if I had to keep them and have plums or not keep them, I should take the latter horn of the dilemma. Perhaps this may be worth a small corner in the POMOLOGIST.—DR. GEORGE WARNE, *Independence, Iowa.*

WHY NOT PLANT EVERGREENS?—Will not our farmers set out wind-beraks of Evergreens? We will furnish Norway Spruce from $25 to $50 per 1000, transplanted and well furnished with tops and roots. No more danger than Strawberry plants in transplanting, and in 10 years will be ten feet high, with no more care than corn would need, and how many would it need to enclose ten acres? At 4 feet apart, 640; at 8 feet apart, 320. Go and measure the diameter or spread of the branches of one of those fine trees you have in the front yard, and then see if 8 feet would not be about the right distance. And what would you take for a tree or such a wind break, 10 feet high? I will give you $5 for a tree. Try it. Set them out this spring.—G. J. KELLOGG, *Janesville, Wis.*

☞One fruit house in Boston sold 261,870 boxes of oranges and lemons during the year 1871, against 169, 431 boxes during 1870—an increase of 92,449 boxes.

Reliable Fruit List for Nebraska.—At the last meeting of the Nebraska State Horticultural Society the committee on fruits for general cultivation reported the following as reliable:

Apples. Raule's Jannette, Buffington's Early, Early Harvest, Early Joe, Red Astrachan, Duchess of Oldenburg, Red June, Early Red, Hocking, Cooper's Early, Drap d' Or, Fameuse, Gabriel, American Summer Pearmain, Fall Orange, Autumn Swaar, Red Detroit, Northern Spy, Wine Sap, White Winter Pearmain, Swaar, Gravenstein, Smith's Cider, Rome Beauty, Sweet Nonesuch, Fall Wine, Golden Sweet, Roman Stem, Esopus Spitzenburg, Winter Wine, William's Favorite, Vandivere, Domine, Grimes' Golden, Willow Twig, Ben Davis, Fulton. Transcendent and Hyslop Crabs give entire satisfaction in their line.

Pears. Bartlett, Seckel, Bloodgood, Tyson, White Doyenne, Duchess d' Angouleme Louise Bon de Jersey, Flemish Beauty, Howell, Oswego Beurre, Lawrence, Beurre Gifford, Easter Beurre, Glout Morceau, Beurre Diel, Belle Lucrative, Buffum, Vicar of Winkfield.

Gooseberries. Houghton's Seedling and the Whitesmith.

Grapes. Concord, Delaware, Catawba, Norton's Virginia, Iona, Israella, Ives, Rogers' No. 15, 19, and Salem.

Currants. Red and White Dutch are reliable. Versailles, White Grape and Prince Albert have done well.

New Mode of Grafting.—A correspondent of the *Gardeners' Monthly*, speaks of a new mode of grafting, thus: "I use a knife-blade, one-fourth inch broad, with which I make a stab obliquely into the side of a large limb or body of the tree, passing into the wood and between the wood and the bark, as near as I can, so that when the knife is pushed in as far as I design, it is hid by the bark about an inch and a quarter, and the bark very little broken or cracked, except in a very large tree. The graft is so sharpened that it slips in where the knife came out, and just fits with the slope mostly on the side next the tree. The cut being oblique, the perpendicular fiber of bark binds the graft tight. The inner bark of the tree and graft has abundant opportunity to unite all along the sloping side of the graft and next to the wood of the tree, and as the whole end of the graft is entirely covered, there is no place for evaporation. A little wax is used to make sure the tightness of the union."

Scab on Apples—Cause.—At the last meeting of the Illinois State Horticultural Society, Mr. Hull stated that he felt certain in his own mind that the Alphis Mali was the cause of the scab, and that we should certainly be successful in curing the defect by killing the cause. Mr. Riley, State Entomologist of Missouri, concurred in the opinion expressed by Dr. Hull, although he could not offer any corroborative facts from personal observation. The sucking of the fruit by the louse, aided by the fungus growth may be the proper source from which this scabbiness sprung. The lice referred to hatch very early, and to a great extent disappear before the flowers are out. Yet enough undoubtedly remain to do the work.

Consumption of French Wines in England.—Mr. T. G. Shaw, in a letter to the *Times*, of December 13th, says that "during the ten years previous to the reduction of the duties in 1860, the annual average consumption of French wines in this country was about one glass for each person, and it is now one bottle, the increase from 1859 to the end of 1870 being from 695,913 to 4,157,372 gallons, and will this year be nearly a million more. The increase is great, but our population has increased above three millions, and our wealth probably 50 per cent."

Preserving Stakes.—A correspondent of the Country Gentleman says: "Some twelve years ago, I had some stakes for nursery made of pine inch boards, three inches wide, sharpened to a point, and then boiled for a short time in a solution of blue vitriol, and they are lying around in the field now as sound as the day they were made; while grape stakes, coal tarred, do not last much longer than when left without."

The Codling Moth.—At a meeting of the Rosendale Famers' Club, Fond du Lac county, Wisconsin, one of the members said "the Codling Moth was unusually active last season, producing a great many wormy apples. The moth was rapidly increasing, and unless it could be checked, fruit growing must fall off." Another speaker said, "The Golden Russett was not as much injured by the moth as some others. The older trees of the less hardy varieties were most infested."

Apples for Northern Wisconsin.—A correspondent of the *Western Farmer*, writing from Northern Wisconsin, says: "The Fameuse, Talman Sweet, Golden Russet, Ben Davis, Sops of Wine, Duchess of Oldenburg, Red Astrachan, Wine Sap, Rawle's Jannette, Saxton, and Northern Spy, have, in the order I have named them, proved to be quite hardy in this county. Other varieties are being cultivated here that are showing a good record thus far, and may prove worthy of being placed on the list of hardy apples."

Fruit in Western New York.—As an index of the vast amount of fruit produced in Western New York, it is reported that from the single county of Niagara, there were shipped last season three hundred thousand barrels of apples, one hundred thousand bushels of cherries and plums, one thousand barrels of pears and quinces, fifty thousand crates of peaches and four tons of grapes.

The Hemlock.—Mr. Manning, of the Reading Nurseries, Mass., says: "I have pruned them into forms that only require a sight to sell them at any price. They look best at this season of the year. My hemlock hedges look most charming. The only thing necessary to sell Hemlock is to get parties of taste out to the nursery and see the hedge and the trees."

Peach Buds Killed.—Mr. J. C. Neff, of Duncan's Falls, Ohio, writes us that the cold snap of December 20th and 21st, did great injury, if not killed outright, all the peach and cherry buds in that region. The mercury fell to twenty degrees below zero on the 20th and stood there for some hours.

Importance of Leaves.—McIntosh says: "In plants the leaves act as lungs in animals; that the preservation of the leaves on vines, as indeed of all other trees and plants, is of vast importance—indeed so much so that the removal of a single leaf tends to lessen the vigor and energy of the tree."

Bleeding of the Vine.—Says a writer on the vine: "Bleeding of the vine in spring is often a source of much anxiety; we have never as yet noticed any bad effects resulting from this bleeding of the laterals, either in the growth of the vine or crop of fruit."

Large Lemon.—The editor of the Pacific Rural Press acknowledges the receipt of a lemon grown in Los Angeles county, "that measured 15 inches in longitudinal circumference, and 11½ inches transverse circumference. It was one of many hundreds on the same tree, not all as large as this however."

Reproduction of Cherries.—A fruit grower in this vicinity positively asserts that the Early Richmond or Early May, and Black Morello cherries will reproduce themselves from the seed. It is my impression they will not without variation. How is it? —Geo. Walters, *Ft. Scott, Kan.*

Remarks.—The Early Richmond or Early May will not, but we suppose the Black Morello may with *slight* "variations" if any.

An Acre and its Fractions.—An acre contains 43,560 square feet; 208¾ *feet square* make an acre. Ten by 16 rods make an acre. A city lot one hundred feet long, by twenty-five feet wide is somewhat more than one-sixteenth of an acre.

Davenport Horticultural Society.—A Horticultural Society has gone into operation at Davenport, with a library and reading room, and where the Pomologist and Gardener has been ordered to put in a regular appearance.

The German Prune.—Filler says the German Prune may be grown where the common blue plum can be; that the curculio works on it as on the plum.

☞It is a generally admitted fact that among strawberries, the Wilson is still the only variety that grows and bears well from Maine to Florida. It seems to adapt itself to all situations and climates.

ERRATA.—In January number of POMOLOGIST, 1872, on page 10 at the close of the fourth paragraph, 21st line from top of the page it reads, "representation is herewith given at B. a side view, and A. back view." It should have read, "representation is herewith given at B. a dorsal or back view, and A. a back view of the moth or perfect imago of the American Lackey Moth, *clisiocampa Americana.*"

Books, Periodicals, Catalogues, etc.

NURSERYMENS' CATALOGUES.—From H. P, Pierce, Moline, Ill.; J. M. Manning, Reading, Mass.; Furnas & Sons, Brownsville, Neb.; Charles Whitney, Kansas City, Mo.; Arthur Bryant, Jr., Princeton, Ill.; John W. Slee, Dundas, Minn.; Bishop & Bancroft, Cedar Falls, Iowa.

THE RURAL ALABAMIAN.—A new monthly journel of Agriculture and Horticulture, from Mobile, Alabama, 48 pages, $2; C. C. Langdon and J. Parish Stelle, editors. Editorially the *Alabamian* stands second to no other paper of its class in the country, while its typographical appearance is faultless. We are glad to see this new acquisition to the Agricultural press of the South. Long life and any amount of prosperity to the *Alabamian.*

INDUSTRIAL MOTOR.—A new monthly, devoted to Industry, Science and Art. A leading feature of the *Motor* is to further the interests of inventors, and will be found of special interest to every one having business in the line of patents. Thomas G. Orwig, Des Moines. 50 cents per year.

AMERICAN WORKING PEOPLE.—A monthly from Pittsburg, Pa. It goes in for protection of home industry, etc., with a will. $1.50.

THE CENTRAL WEST.—A new monthly hailing from Duhuqe, by R. Tompkins. It is a kind of nondescript in its way—touching upon things of interest generally and nothing in particular. It has a railroad map worth the subscription price.

HOME AND HEALTH.—One of the most useful publications we know of. Its pages abound with practical hints on the preservation of health, remedies for ailments, etc., etc. Du Puy, Holmes & Co., New York. $1.50.

THANKS.—To Hon. Geo. G. Wright for a copy of the Report of the Commissioner of Agriculture, for 1870.

To Dr. J. M. Shaffer, Secretary State Agricultural Society, for a copy of his Report to the Legislature for 1871.

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THE POMOLOGIST

VOL. III. Des Moines; Leavenworth, May 15, 1872. No. 5

MARK MILLER, Managing Editor and Publisher, Des Moines, Iowa.

Dr. J. Stayman, Associate Editor, Leavenworth, Kansas.
Dr. Wm. M. Howsley, Corresponding Editor, Leavenworth, Kansas.
Dr. S. H. Kridelbaugh, Entomological Editor, Clarinda, Iowa.

The Newtown Pippin.--Are there Two Varieties of this Apple?

BY THE CORRESPONDING EDITOR.

We have cultivated the apple bearing the above name, since 1836, under both of the names of Green and Yellow Newtown Pippin, having obtained our trees of Col. Allen, of Holly Spring Nursery, Nelson county, Kentucky. We fruited them in Hardin county, Kentucky, side by side and could detect no difference in either tree or fruit. The trees have a peculiar habit of becoming bark bound, particularly as they approach to bearing age. They are also liable to become sun scalded on the south-west side, and of sloughing off the bark, in size from the palm of the hand to the crown of the hat, exposing the wood, which soon decays, and the trees not unfrequently die in consequence of this exposure.

This diseased peculiarity applies equally to the *green* or the yellow varieties, so-called. It would seem strange in our judgment, that trees springing from different seeds should be so identical in growth, in color of the bark, the peculiarity of the buds and leaves, when in health, together with the identical manner in which disease attacks, runs its course, and results in the same way if they were not identical, that is from the same *seed*.

The trees which bore for me in Kentucky, under both these names were killed with the memorable freeze of November, 1844, since which time I have obtained cions under both names from various portions of the country, have also seen them in bearing and am now growing them in Kansas, and have never up to this time been able to detect any difference in tree or in fruit, in disease or in health. We have always thought that in regard to the flavor of fine apples, we had quite a discriminating palate, but with all of our trials through a long life, have never been able to say (especially when tasting in the dark,) which was *green* and which was *yellow*.

Mr. Charles Downing, we believe, is the only one who has attempted to define the *precise* difference in flavor between these *supposed* two varieties of the Newtown *Apple*. However much we value the opinion of Mr. Downing, in anything relating to fruit, especially to the apple, we are constrained to believe, that if portions of each of these supposed varieties were presented to him in the *dark*, of the same maturity and grown under similar circumstances in all respects, that he will miss as often as hit the supposed variety in question.

The late A. J. Downing, in his first edition of his Fruits and Fruit Trees of America, describes, if we recollect aright, but one variety of the Newtown Pippin. We have his catalogue of 1843 now before us, in which he mentions but one. If there had been two varieties of an apple of such wide world renown, it is strange he did not describe them both. Kenrick, in his new American Orchardist edition of 1826, we believe, mentions but one variety. It is singular indeed that if there were two varieties of this apple these two writers who must have been well informed upon this subject, should not know it, or if known should ignore it.

A correspondent of ours from Whippany, N. J., went some two or three years since to Newtown, Long Island, for the especial purpose of investigating the facts in relation to these two supposed varieties. He ascertained from unquestioned facts where the original Newtown Pippin or apple tree stood, but where the tree of second variety stood, was not known by any body. So pleased was he at finding where the one original tree stood, that he offered $250 towards erecting a monument to its memory.

We think with all these facts before us that the distinction of *green* and *yellow* should be discarded in describing this apple.

The European Larch.--Its Durability.

By Prof. James Mathews, Iowa Agricultural College.

Ed. Pomologist and Gardener: — I have for several years been giving considerable attention to a matter which has been and is now agitating the public mind throughout the whole West, and which in every aspect of the subject is one of very grave importance. I allude to the cultivation of the European Larch, which is so strongly urged upon the people by many who have had considerable experience in arboriculture, and to whose judgment in such matters I usually bow with the greatest deference. Certainly as an ornamental tree, we have but few finer than the Tyrolese, or Europeon Larch; and whether its usefulness in this country will be equal in general pecuniary results to its value in other and trans-atlantic portions of the world, where it grows so well both spontaneously and by cultivation, is what we are especially interested in knowing. Unfortunately, but little light has been shed upon this momentus proposition in our country, except what is drawn from analogy, or a supposition based upon its acknowledged worth in foreign lands. That it is extremely valuable elswhere, is proven beyond a peradventure; but we are not sure yet, by any well authenticated experience in the United States, that its wood when grown in our soil, and especially in the rich prairies of the West, "is the most durable in the world!" This tree's durability seems to depend upon the resinous matter or turpentine it contains, and its peculiar texture. Were it not for these, I presume it would have no claims upon public attention for resisting exposure to water, or the ordinary inclemency of the seasons.

According to the accounts we have of this tree (*Larix Europea*) it undergoes great changes by being grown in different climates, localities and soils. We find that in some situations, its most Northern habitations, it only forms a low, trailing shrub; while in its most favored home upon the Alpine Hills and other congenial locations, it grows to one hundred feet and upward in height. In a circular published by Mr. E. Y. Teas, on this subject in 1869, he says: "In Savoy, according to a French writer, houses are built of Larch logs, squared and placed one upon another, in the style of our American log houses. The heat of the sun melts the resin contained in the logs, and the structure thus rendered impervious to air and moisture, will last for centuries. In some parts of France houses are now standing that have been built two hundred and fifty years, and still show no signs of decay; the great amount of resinous matter rendering the wood imperishable, and on this account it will out last the Red Cedar. There seems to be well authenticated instances in Europe in which larch timber having been in use one thousand years, still remains sound."

Now does the Larch contain this extraordinary resinous substance when grown in our fertile prairies, without which it may for aught we know, be of no more utility than cottonwood or soft maple. I have been growing the European Larch in Iowa for seventeen years. I have one tree in my grounds which is about forty-five feet high, and nearly fifteen inches in diameter, one foot from the ground. I have also many others of various sizes, from fifteen to thirty feet high. It is a very rapid grower, in this respect all that could be desired.

I have been making such observations as I could, to discern if possible its crowning qualities in other countries—that of durability, and I confess thus far without satisfactory results. Having discovered in several instances causes for doubt in this respect, I concluded in the spring of 1869 to make an experiment with a lot of young trees I had then

on hand. I cut down several which were twelve to fifteen feet high, prepared them for grape stakes, and set them about the first of May. This spring on the second day of April, I had occasion to examine them, and found every one so rotted that it had either fallen down or would break off with a very slight pressure. These facts led me to the conclusion that we had better be careful in recommending the larch for durability in the various purposes for which it is used in France, Germany, England, Switzerland, Italy, etc. That it is greatly affected or changed in its quality by being grown in different situations, even in Europe, there is the highest authority.

In Mr. Loudon's "Encyclopedia of Gardening," page 1112, he says: "That species of British timber which approaches the nearest to the pine and fir timber of the North is the Scotch Pine, when grown in the North Highlands, and the Larch Fir (*Larix Europea*) when grown in hilly or poor districts; resinous timber of the species indigenous to cold countries, when grown in rich soils, and in warm climates, being found deficient in durability." And again, on page 1157 he says: "The larch will grow and attain a large size in every soil and situation except in standing water, but a certain elevation of surface, or coldness of climate and inferiority of soil is absolutely necessary to produce the timber in perfection." This author also states that there are some soils in which at the age of forty years the "larch rots at the heart," in other "cankers," etc.

Our experience in the Western country has not yet fully decided, nor have we had the means of determining the many important considerations arising out of the larch problem, and having found it fail so utterly with me in one of its prominent uses in other countries where its durability has been established, I make the foregoing suggestions and statements for those who are interested in the matter.

I have brought specimens of my three years' experience with this timber for grape supports, to the Agricultural College, where they will be kept for the inspection of all who may desire to see their condition after standing three years in the ground. Also, others can be seen on my premises at Knoxville.

Parasitical Plants.

By Jacob Stauffer, Lancaster, Pa.

Ed. Pomologist and Gardener:—Plants which grow in the tissues of other species, and feed upon their juices, are parasitic. Our object is to present a chapter without special classification. We mention, however, that the term *parasitical* is often applied improperly to mosses, orchidaceous plants, *Tillandsias*, and the like, which are mostly Epiphytes, growing upon the bark of trees, but deriving their food from the air by means of their own roots.

The Mistletoe is a true parasite; the species vary according to the country in which they flourish, and adopt different kinds of plants for their foster parents; some bear a reddish colored fruit, others a yellow, and others a blue. Not unfrequently it spreads over a plantation in such profusion as completely to destroy it. In coffee plantations of South America its ravages are often extensive.

The Mistletoe Family consists of shrubby plants, with coriaceous, greenish foliage, and "differs chiefly from the sandalwood family by their parasitic growth and habit, and by their more reduced flowers, than by essential character," (Dr. Gray). The species found in Pennsylvania, New Jersey to Illinois, and South, which Tursh named viscum flavescens, seems to prefer the Elms and Hickories. This, Dr. Gray calls the *Phoradendron*, flavescens. The generic name is compounded from the Greek, *a thief* and *a tree*, because these plants steal their food from the trees they grow on. But so far as that is concerned, the Mistletoe that flourishes on the apple tee, and is common in England, is as much of a thief.

This is the *Viscum Album*. There is a curious legend concerning this plant found in the old Norse mythology. Balder, the sun-god of the Scandinavians, and his mother, Friga, and Loke, his chief enemy, figure in it. The ceremony of the Druids in cutting the Mistletoe is interesting to the antiquarian, but I will not tax your readers with a

rehersal. Our species hardly differs generically, and TURSH's name might have been adopted.

A member of the Linnaean society, of Lancaster, Pa., Mr. Eshelman, brought a branch quite green and having flowers, taken from a tree in the latter part of January, 1872, although its flowering period is set down for April. Here allow me to remark, that what is called the oil nut or Buffalo nut, (Pyrularia Oleifera or pubera *Michx.*) a low, straggling shrub belongs to Santalaceæ or sandalwood family above referred to, and our plant called (rather improperly) *Bastard Toad flax.* The comandra umbellata is included in this family. In Dr. Gray's Manual of Botany, second edition, (1856) on page 383, he says: "Root forming parasitic attachments to the roots of trees (as shown by Mr. Stauffer), in a note on the parasitism of *comandra umbelletta nut*, published in Silliman's Journal, volume XVI, number 47, page 250, September, 1853. by ASA GRAY, M. D., will be found a reference to the specimens I sent to Dr. Gray from Mount Joy, Lancaster county, Pa., which proved that our comandra was also parasitic, as well as the *Thesium Liophyllum*, published by Mr. Wm. Mitten, an English botanist, in Hooker's London Journal of Botany, (volume VI, page 146, plate 4). I also sent him specimens of Gerardia, more or less parasitic in their habits, and not before noticed. I simply mention this to show that I have been observant as a botanist long prior to 1853, and that it further indicates the near relationship between the two orders SANTALACEÆ and LORANTHACEÆ, the comandra belonging to the first, and the mistletoe to the latter, as still closer allied in habit, also.

Everybody is familiar with the *Cuscuta*, or Dodder. There are nine species of cuscuta described by Dr. Engelman, of the N. United States, infesting various plants. Their appearance is that of long filiments, mostly of a yellow or reddish color, which twine themselves around the branches of other plants, and become attached to them by means of suckers, absorbing for their own use the nutritive fluid they contain. They then lose all connection with the soil, and are solely supported by the life-blood of their benefactors. In this way they not unfrequently destroy whole crops of lucerne, thyme, clover and flax. Along streams I find them choking up the Lizard's tail *Saururus Cernus*, so common on the margin of ponds, with their long, drooping spikes of white flowers. These parasites spread with terrible rapidity, and are almost as much dreaded by the husbandman as a flight of locusts. It is useless to provide them with the support of a timber frame work or a dead tree, or to place at their disposal any other plant than that which they themselves select. They perish of inanition if they do not obtain their accustomed food.

The Orobanchaceæ or Broom-rape Family are root parasites herbs, destitute of green foliage, low, thick and fleshy plants, bearing scales in place of leaves, flowers solitary or spiked; the Epiphegus, *beech drops* or *cancer root*, conspholis, *squawroot*, thelipæa, *broom-rape*, aphyllon, *naked broom-rape*; but these are usually found in places remote from culture.

Various diseases and diseased conditions are due to the parasitical action of fungi; as dry-rot to the presence of *Merulius Lacrymans*, *Polyporus Hybridus*, *Thelephora*, *Puteana*; these render the wood brittle and destroy the cohesion. It sometimes commits serious damage in ship timber and in damp, ill ventilated houses. Dark, damp situations are favorable for an attack of these fungi. *Pickling* timber in a solution of corrosive sublimate, coal tar, creosete, etc., have been used with beneficial results. The paper hangings of rooms are occasionly over run by it in houses which have been long shut up and neglected. The disease called mascodine, in silk worms, is caused by a fungus, *Botrytis Cassiana*; the mould on various organic substances by *Penicillium Glaucum*. The terrible potato disease is supposed to be due to a minute fungus, called *Botrytus Infestans*. The disease is by some referred to the genus *Peonospora*. On the vine attacking the grape is the *Oidium Tuckeri*, the vine mildew infesting the grapes and plants in hot houses, a naked-spored mould. Mr. Berkley, however, thinks that the oidium is an early stage of some *Ergsiphe*. Sulphur is the only remedy which has, as yet been discovered. These do not enter into the wood, but spread a net-work of fine filaments, which absorb its suc-

culent, saccharine juices, and reduce it to a hard, dry, wrinkled, and useless husk. The disease called *smut*, incidental to corn crops, by which the farina of the grain in the whole body of the seed is converted into a black, soot-like powder. Mr. Berkley tells us that means used in preparing seed corn against what he calls "bant" may be effectual against "smut." But the Bant *Tilletia Caries*, is a parasitic fungus, having globose spores, with a cellular outer coat, in which it differs from other *Ustilaginei*. For this Mr. Berkley gives a remedy — "to wet the seed corn thoroughly with a strong solution of Glauber salts, and then dust it with quick lime." The spores of the (*Uredo Segetum*) smut are so much more fully dispersed, that the remedy in this case is questionable. Mildew on cereals is caused by the *Paccinia Grancinis*; brent by the development of *Uredo Caries*, and rust by the action of *Vrodo Rubigo*, The production known as *Ergot* or *Spurred Rye*, is a fungus disease, producing alarming distress when ground up, in rye-flour and eaten in bread. This fungus is known as *Spermadia Clavus*, which is perhaps more properly called *Oidium Abortifaciens*, from the uses made of it. as a stimulus upon the uterus. There can be no doubt that to it may be attributed much of the injury sustained by flocks and herds either in the shape of gangrene, or by causing them to slip their young, at least where the fungus is abundant as in some seasons, and flocks have access to it. It is well to be on the lookout.

The species formerly included in *Uredo*, so named from the Latin Uro, *I burn*, many of them are now referred to other genera. The modern group of *Uredinci*, smut or dust brand, is now referred to the genus *Ustilago*. Steeping corn in a solution made of one pound blue vitriol dissolved in two gallons of water, thrown on eight bushels of wheat, stirring until every grain is wetted, it will dry itself in an hour or two, and be fit for sowing. It is nevertheless doubtful as regards the immunity of the crop, although the fungus is to a great extent destroyed by the dressing of vitriol.

We have lately been alarmed, and there is some reason for it, that numerous diseases which "flesh is heir to," arise from inhaling fungoid sporules that float in the air and are so minute as to require the most powerful microscopes to detect them; what with animalculæ and pestilential vapors, against which we can hardly protect ourselves, unless sanitary regulations are thoroughly established and presided over by those who understand the whole subject, otherwise we may as well be in blissful ignorance, and jog along as best we may.

On one occasion, in conversation with an aged fisherman, who would be out during the entire night, exposed to malaria, damp and fungoid effluvia, I expostulated with him for using so much whisky and tobacco as being a great evil. He replied, "Why sir, you would get the shakes in less than no time, laying about loose, as I do, without the use of whisky and tobacco." Thus it is, the old adage, it takes "one devil to destroy another," thought I, and passed on, leaving the old man in his philosophic conclusions, whether true or false. I considered it too a hard case to meddle with. I however cannot endorse the old man's notion. Middleton says:

"If men of good lives,
Who by their virtuous actions stir up others
To noble and religious imitation,
Receive the greater glory after death,
As sin must needs confess: what may they feel
In hight of torments, and in weight of vengeance?
Not only they themselves not doing well,
But set a light up to show men to hell!

Protection of Dwarf Pear Trees. Pear Trees Among Evergreens.

By W. H. Yeomans, Columbia, Conn.

Ed. Pomologist and Gardener:—In the attempt to produce fruit, it is of the utmost importance that all of the various modes of procedure that have resulted in success should be thoroughly understood, and it is somewhat of a wonder that there is not more written upon this point. There is no fruit cultivation that requires a greater amount of

judgment than that of Dwarf Pears. And in this, as in other farm operations, the results of accidental causes sometimes prove to be of no inconsiderable consequence and value. A point of considerable importance was discovered in that way.

It occurred in the experience of Hon. E. H. Hyde, of Stafford, Vice-President of the Connecticut State Board of Agriculture. Mr. Hyde had planted a number of dwarf trees, and thinking to unite the rustic ornamental with the useful, set small evergreen trees forming a circular inclosure of some twenty feet diameter, interspersing the evergreens with dwarf pears at proper intervals, thinking that by shortening the evergreens and forming a hedge, his pear trees could produce sufficient growth above the hedge, and thus present a novel appearance. But like many other plans, in consequence of the press of other duties, were not fully executed, and as would be expected, in a short time with no heading back, the evergreens soon outstripped the pear trees and partially hid them from view, some of the evergreens being twenty or more feet in height. At the same time the pear trees were as perfectly neglected as the evergreens, and were left to grow at pleasure.

Now for the result.—While many other trees in the immediate vicinity of the evergreen enclosure were in bearing, for some cause the fruit was thin, and also of poor quality, and very irregular in bearing; those "among the trees" almost invariably bore, and at the same time produced fruit of far superior quality. Nor is this an exception and only one particular case, inasmuch as other parties have had similar experience, and have found that where pear trees are grown among evergreen trees, the results are much better than where planted in the usual manner. The question very naturally arises, why is this result produced? In the case of Mr. Hyde's trees, they grew so compactly as to entirely prevent the growth of any grass, to the distance of the spread of the branches, and the foliage as it fell acts as a mulch, to the degree that the whole inclosure within the circle was thoroughly mulched, and was as light as it could be possible for any soil to be. Whether this alone is the cause of the increased crop, or whether the decayed leaves from the evergreen trees possess some peculiar property especially adapted to the production of the fruit of the pear, remains to be observed and proved. At the same time, if the evidence is sufficient to prove the fact of the importance of interspersing evergreen trees among pear trees for a protection, it is a comparatively easy matter, nor would the pear trees require setting at greater distances apart, since it would appear that the more thorough the protection the more sure the results.

One thing is certain, that the subject is of sufficient importance to warrant a series of experiments in the case. And since to grow standard pears to any great extent, requires about the time in which one generation lives, while this luscious fruit can easily be grown upon dwarf stocks in a very few years, it is a duty resting upon every person engaged in any way in its culture to institute all the experiments possible, that the fund of reliable information may be greatly increased, and mankind at large greatly benefitted.

Cut Flowers.—Effective Arrangements.—The first thing to be considered in arranging cut flowers, is the vase. If it is scarlet, blue, or many-colored, it must necessarily conflict with some hue in your boquet. Choose rather pure white, green, or transparent glass, which allows the delicate stems to be seen. Brown Swiss-wood, silver, bronze or yellow straw conflict with nothing. The vase must be subordinate to what it holds. A bowl for roses. Tall-spreading vases for gladiolus, fern, white lilies, and the like. Cups for violets and tiny wood flowers. Baskets for vines and gay garden blossoms. A flower-lover will in time collect shapes and sizes to suit each group. Colors should be blended together with neutral tints, of which there are abundance—whites, grays, purples, tender greens—and which harmonize the pink, crimsons, and brilliant red into soft unison. The water should be warm for a winter vase—cool, but not iced, for a summer one. A little salt or a bit of charcoal should be added in hot weather, to obviate vegetable decay, and the vase filled anew each morning. With these precautions your flowers, if set beside an open window at night, will keep their freshness for many hours even in July, and reward by their beautiful presence the kind hand which arranged and tended them.—*Scribner's Monthly.*

Pear Blight.--Criticisms on Dr. Stayman's Position.

By D. B. Wier, Lacon, Ill.

Ed. Pomologist and Gardener.—In the January number of the Pomologist, Dr. Stayman complains of trouble in tracing pear blight to a fungoid cause. The Dr. is right in his firstly, secondly and thirdly, but certainly not in his fourthly, where he says "They (fungi) will attack trees in a most destructive form on one piece of ground, and on another piece of ground not one hundred yards distant, containing trees of the same kind same age, and even of the same variety, they make no attack whatever, *notwithstanding all the trees are surrounded by the same circumstances, in regard to heat and cold, wet and dry, sunshine and shower.*" This must have been written thoughtlessly, and I am certain the Dr. does not believe it himself. No two pieces of land, even only fifty yards apart, were ever surrounded by the same circumstances in regard to any point named, and believing as I do that blight in a pear tree may reasonably have its origin in the slightest causes imaginable, these little points have their weight.

That the most fatal blight in the pear, and the one most common, or in other words the one that destroys the bark and sap-wood is a fungus, is a fact as well proven as any fact in science can well be. Farther, blight does attack pear trees in the driest of summers, as is well proven by its development among my trees the last two exceeding dry summers, while in the exceeding wet summer of 1869, I saw no case of wood and bark blight in that season in this neighborhood. It is certainly the most prevalent here in very dry, hot Junes, *if* the trees are making a very thrifty growth at that time. And farther, it is well proven that some fungi do from their own vital power alone attack and destroy healthy, *living* tissue. Whether they do this by their own vital power, or by exhaling noxious gasses, or by absorbing principles neeessary for the health of their victims, remains to be proven in any particular case; yet, it is the general rule that they usually find nidi in disorganized tissue primarily, but this does not militate against their ability to destroy healthy, living tissue in contact with a nidus. Now if these are facts, and I believe them incontrovertable, it is easy to explain to the Dr. how blight can attack a seemingly perfeetly healthy and vigorous tree, why it does not attaek one of feeble growth and why root pruning can and does check it, if it is properly done and at the right time, and also why it is more to be feared in a dry time, if there is a thrifty growth of tree.

Can any one find such a thing as a pear tree in the growing season in this little world of ours, that has not diseased and disorganized tissue in eontact with healthy? Most certainly he cannot. No pear tree ever did or ever can pass a summer without some point being exposed to serve as a breeding place for a fungus, but that is no reason that the fungus will propagate in it. Its proper seed or spore must first find a lodgment in it, and the essential conditions must be right for that spore's germination, and it must find in the nidus a sufficiency of proper food to support it. If all things are right it generates amazingly, and fills the whole tree with its disorganizing and deadly presence. I am fully convinced that the most destructive form of pear blight, the one under eonsideration, always has its birth-place in some point where living tissue of low vitality is exposed, and such exposed part must generally be of some considerable size and remain exposed for some considerable length of time, and be kept by the vigor of the tree (free flow of sap) in a condition to act as a nidus and nourisher of the fungus. Now we come to *the* point. But I will lead Dr. Stayman up to it carefully, so as not to startle him too much.

At what time of year do we find the most blight? From the first of June to the first of July.

What are our pear trees doing during this month? They are depositing a new layer of wood and bark on their branches and trunk.

What aged trees are most generally attacked? Those over four years, planted in orchard.

In what condition is the bark of such trees? The outer bark on the older portions of the tree has become dead and hard, but still clings firmly to the inner live bark.

These questions are truly answered, are they not? Well then, what will be the result if there be deposited a quarter of an inch of new material under this dry, hard and already strained dead bark? Will it not be ruptured all over the tree? And will not such ruptures expose yet living bark, but of low vitality, to the attack of this peculiar pear fungus, if its spores are in the air by the thousand or million? And may not some one or more of these numerous ruptures prove a nidus or nidi and a nursery for them? And may not there be many good reasons why its spores may reach one pear garden, and not another only a few rods removed?

Now we come to the other point, why root pruning may *check* blight, not prevent it, and why it does not usually damage trees of slow or feeble growth. Investigation after investigation has proven that this blight cannot spread after active growth has ceased, or, to put it more scientifically, after what was before something else (elaborated sap) has become cellulose, legnine or liber, so it follows as a matter of course, if we can bring about this cessation of growth before the blight or fungus can have time to do hurtful damage, we save our trees. With thrifty trees this can only be accomplished by root pruning, and that this will in *some* instances if properly done at the right time, save the trees can no longer be doubted, but that it will prevent insipient blight is certainly not so. Among trees of very feeble growth this blight cannot spread, for the reason that what little growth they do make is matured very early in the season, before there is heat enough to generate the blight. Trees like the Seckel are generally safe for the same reason. There may be instances where this form of blight attacks small, smooth barked twigs, finding a nidus in the puncture of an insect or in some other wound, but no such instance has come under my observation resulting in any serious damage; but I have often seen instances of its spreading to a damaging extent from wounds on the older parts of the tree—in one instance from a wound made the year before. Therefore I say, and men of greater experience than me, say, no *pruning* of pear trees for "we uns." The resulting question from all this is: Can we in any *practical* way *prevent* and subdue this one and the only fearful form of pear blight? I am confident we can, or at least prevent its ravages to a great extent.

MY PLAN HAS BEEN AND WILL BE AS FOLLOWS:

Plant standard trees, or more properly, trees on their own, or Mountain Ash (*Pyrus Aucuparia*) roots, one year from bud, or two years from graft—I prefer the latter—on high, dry, rather poor soil; cultivate them thoroughly for the first four years early in the season, suspending all cultivation by July the first. Cut the trees back to a foot or eighteen inches, so as to make them head low when planting, and never under any circumstances prune or cut them in any way thereafter except if the growth in one season should exceed eighteen inches, cut back to that length, always leaving one central shoot, the langest, for a leader. After the trees have made four season's growth, sow the orchard to red clover, being careful to mulch around the trees so that they will not be too much checked in growth, and from that time on never mow or pasture the clover, or disturb the soil of the orchard in any way. I think trees so cared for will never be found wanting in vigor, without they are allowed to over bear. If they should cease to make growth enough — two to four inches a year is growth enough, — a very small amount of manure applied to the surface of the soil will revive them. The first full crop of fruit the trees set should be one-half to two-thirds thinned off when the size of an acorn. *This must not be neglected*, and they must never be allowed to over bear. An orchard treated in this way will as a rule be very free from blight and diseases of all kinds.

Among the healthiest and most productive pear orchards I have ever seen is one in the Government Experimental Grounds, at Washington, D. C., and has been reared by that thorough and scientific gardener, Mr. William Saunders, and has been treated very much after the plan outlined above. Mr. Saunders has in this orchard proven, I think, that if blight cannot be prevented in its incipient stages, that it can be subdued and killed in nearly every instance before it does any serious harm. His plan is to keep a close watch

over the trees during the growing season, and if any incipient blight is seen, all diseased portions are shaved off, and the wound washed with a wash made with one peck of the best quich lime, with four pounds of sulphur mixed with it, and then boiling hot water poured on to them sufficient to slake the lime, and reduce it to a thick, white wash, and also all parts of the tree, covered with old dry bark. The trees under Mr. Saunders' care stand in a closely mown sod, are vigorous to a fault, almost entirely free from loss by blight, bear great crops of the finest fruit, yet the soil in which they grow is simply a thoroughly underdrained swamp. They are mostly dwarfs on Quince.

Sulphur, or rather sulphurous acid, and sulphurous acid gas, are well know to be deadly poisons to all species of fungi, therefore it follows if we can keep our pear trees continually under their influence, or in other words, if we can keep this acid or this gas always present on the barks of our pear trees in the growing season, we can have no blight. To have them there it will only be necessary to wash all parts of our trees covered with indurated bark, three or four times during the growing season with the above wash, or what would perhaps be a better wash, equal parts of sulphur and lime prepared in the same way, only boiling it in water for some time after slacking. This would give us the chemical compound known as polysulphate of calcium. I am inclined to believe that one thorough application of this wash to a pear tree about the middle of May, would generally prevent blight.

A tree grown as I have indicated will not be so injured by blight but seldom so as to destroy it, while a tree with a long, naked trunk, would as a rule be destroyed. I would say in conclusion that an orchard planted and treated as above, without the washes or root pruning, is a pretty safe investment, if we do our very best to not allow the trees to be over excited in growth, and plant them thickly, six to eight feet apart, in rows running a little west of south, and giving them plenty of room the other way.

Fruits Recommended for Louisiana.

The Fruit Growers' Association of Louisiana, at a late meeting adopted the following list of fruits for general cultivation in that State:

Apples — Early Harvest, Red Astrachan, Red June (Carolina), Yellow June, Bevan, Early Strawberry, Julian, Mercer, Horse, Bachelor, Taunton, Rome Beauty, Carter, Shockley, Yates, Roxbury Russet.

The following were also recommended for further trial:

Watkin's Sweet June, Hagan's Seedling, Pride of the South.

Pears — Madeleine, Doyenue d'Ete, B. Giffard, B. Goubalt, Doyenne Boussac, Howell, Bartlett, B. Superfine, Onondaga, St. Michael Archangel, Duchesse d'Angouleme, B. Clairgeau, Lawrence, Winter Nelis.

Peaches — Yellow St. John, Early Tillotson, Stafford's Rareripe, Chinese Cling, Crawford's Early, Oldmixon Free, Oldmixon Cling, Susquehanna, Columbia, Heath Cling, Baldwin's October, Lady Parham.

Apricots — Moorpark, Early Purple.

Plums — Wild Goose, Brill.

For further trial — Columbia, Lombard.

Grapes — Delaware, Concord, Warren, Scuppernong. Promising — Eumelan, Ives, Israella.

Strawberry — Lengworth's, Wilson, Mary Stewart, Imperial, Triomphe de Grand.

Quinces — Apple, Chinese.

Figs — Smyrna, White Genoa, Celeste, Brown Turkey, Brunswick, Green Ischia.

Pomegranates — Sub-acid, Sweet, Sour.

Raspberries — Mammoth Cluster, Davidson's Thornless.

For further trial — Philadelphia, Clark, Seneca Black Cap.

Orange — Creole Sweet Seedlings, Large China, Mandarin.

Japan Plums — At New Orleans and south.

Pecan — Large soft shell.

Grapes, The Two Families — American and Foreign.

The following remarks upon the grape are taken from a paper read before the State Agricultural Convention of Georgia, by Mr. P. J. Berckmans, an intelligent horticulturist of the South:

"The Genus *Vitis* (the Grape) is divided into two main families:

1. The European family, or *Vitis Vinifera*, indigenous to Europe and Asia, which comprise but one type, although it is subdivided in tribes as Chasselas, Muscato, etc.

2. The American family, which comprises several types quite distinct from each other; of these there are several that have produced improved varieties.

Vitis Labrusca, or Winter Grape, whose habitual ranges from the New England States to North Carolina, and the mountainous parts of Georgia. This type has produced numerous varieties, of which the following are the best: Catawba, Creveling, Delaware, Diana, Ives, Martha, Hartford Prolific, Miles, Maxatauney, Ontario, etc.

Vitis Œstivalis, or Summer Grape, indigenous to the Middle and Southwestern States. Its best improved varieties are Warren, Lenoir, Black July or Devereux, etc.

Vitis Cordifolia, or Frost Grape, growing wild from Maine to Georgia, but increasing in abundance in the Middle and Eastern States. The best variety originated from this type is the Clinton.

Vitis Riparia, or Winter Grape, common along the margins of rivers in Kentucky, Tennessee and Upper Georgia. This type has produced very few improved varieties; the inflorescence preponderating in male flowers, which causes the bunches of fruit to be unevenly filled. The Taylor, or Bullit, of Kentucky, is the only variety disseminated.

Vitis Rotundifolio, the Muscadine or Bullace, is confined to a more limited zone than most of the other types. It is found from North Carolina to Mississippi, its habital scarcely extending outside the 30° to 36° of latitude. Cultivated varieties, Scuppernong, Thomas, Flowers, etc.

Vitis Vulpina, the Texas Muscadine, a type closely allied to *Rotundifolia* in its inflorescence, which is apt to be *Polygamo-diœcious*, or having perfect flowers on some plants, and either male or female flowers only upon others. This type is indigenous to Texas and Southern Arkansas, and seems to prefer the rich bottom lands of that country. This type is subdivided in several classes, such as the Mustang, Postoak, etc.

From this it will be seen that our immediate region is the home of the *Œstivalis* and *Rotundifolio*, the other types being less abundant. We may, therefore, expect better results here from the cultivation of improved varieties of these types, than from those which are naturally indigenous to colder regions. Our ill success, or want of a continued succession of good crops here, may be attributed to several causes; some are, doubtless, owing to diseases, which affect the grape vine more or less in every portion of the globe where it is cultivated, but others are due to the selection of a variety unsuited to our section, or to a peculiar soil, the defective method of culture and training. These latter sources of failure are in a manner within our controlling power, the first being more difficult to overcome. A prevailing idea exists among many persons that a soil too poor to produce a crop of corn is sufficiently good for the culture of the grape. It is true that such is the case to a certain point; the vine may find nutritive elements in a soil which is devoid of those necessary to produce a cereal, and will thrive in it for a few years, and yield some good crops until these elements have been exhausted, when a failure of crops inevitably result. This may be called poverty stricken. Vines need fertilizing as well as any other vegetal which is expected to produce annual crops of fruit; the fertilizing material must consist of lime, potash and other ingredients having a salifiable base. Vegetal and ammoniated manures are not as advisable. Our native varieties are, naturally, very rampant growers; they must, therefore, not be stimulated in their wood growth. When a sufficient quantity of nutrition is annually given to the soil, a good return of fruit can be expected. All fertilizers intended for the vineyard should be applied in a soluble form easily absorbed by the plants.

The best wine growing districts of Europe are those of a calcareous formation. In

Spain, it is universally admitted by wine growers that no grape can flourish where lime does not exist in the soil.

Our great error here, is to follow too much the European methods of training. We have not only a different climate, but different families of vines from those found in the German and French vineyards. There the ordinary varieties of wine grape seldom attain an annual growth of over two or three feet; here, many of our native varieties, under favorable circumstances, perfect canes of from ten to forty feet. If we follow the French and German method of vineyard culture, planting vines four feet by four, or four feet by six, we must necessarily follow their system of close pruning. This, our rampant growing varieties cannot long withstand. Pruning forces our vines to form more wood than is consistent with their economy. If this is repeated annually for a series of years, our vines become exhausted and fail. The aim of the Southern vinyardist is to study somewhat the natural habits of our vines, and not to follow implicitly the advice of European vine dressers in all their teachings. Our native grape vines require to be planted at distances not less than ten feet in the rows; in rich soil still farther apart.

In pruning, the bearing canes must be left from four to six feet, and trained in such a manner as to afford as much shade as possible. Here, again, we have to work for a different result from that which the European vintner expects; he must advance the maturity of his grapes by giving them sunshine; we must retard it by shading the fruit. All of our native varieties have a dense and luxuriant foliage, which is a provision intended by nature for a certain object — that of shading the fruit from the scorching heat of our summer's sun. The European varieties of *Vitis Vinifera* differ from ours in that respect by their light, and, generally, deeply lacerated leaves, which afford little protection against the sun; showing in their case that light is essential to the perfecting of their fruit."

Origin and Prospective Value of New Varieties of Grapes.

The past one, two or three years has been fitfully exuberant of new fledgeling or seedling grapes, each with as much promise as ever bid good morrow to its parent, either in vegetable or animal life.

I cannot say that I have some for all, for this is a wide country, and with the most widespread of friends or enemies, it is not any one man that is enabled to grasp all; yet I think I may say I have my share of observation and correspondence relative to the new or so-called newly originated varieties of grapes, their taste and character comparative, together with a large number of courteous communicative descriptions and ideas of their originators.

At this present time we have on our list of named and described hardy and so-called native grapes over one hundred and fifty varieties, and of which only one has record of success in all sections, localities, soils, and under various modes of cultivation.

We have before us, according to my knowledge, but two men in the Northern States who are really devoting time, intelligence, labor and expenditure towards a proposed improvement of the grape suited to general culture. These two men are Geo. W. Campbell of Delaware, Ohio, and James H. Ricketts of Newburgh, N. Y. In the South we have Dr. J. P. Wylie, of Chester, S. C. There may be others. Aside from these three enthusiastic, careful students, and appliers practical of principle, there are many who sow seeds and base their record on some chance production; these chance productions perhaps sometimes proving good in the place of their origin, but with no definite parentage to enable one to judge as to their probable success in other soils and localities.

I like all this, for it keeps more or less of unfanciful testers constantly occupied digging up and planting, noting, etc.; but if we are to have a first class grape for general culture, I think it has got to come from some more systematic rule of parentage; whether hybridizing, crossing or renewing, by growing from seed of the best again and again, according to Van Mons, will bring the result, is of course yet a disputed point.

But now let me speak of Mr. Campbell, who, for twenty or more years, has been steadily at work raising seedlings, testing and throwing them away, with a consciousness that

they were no better than other known sorts; and so letting his feelings of progress, and a wish to better man as he bettered his pocket, overcome him, until the expression has almost become a by-word in Ohio, when a man talks of raising seedlings: "Yes, do like Campbell, and you'll win — over the left!" not strictly refined, I acknowledge, but nevertheless expressive. Mr Campbell makes as a first requisite, or as the foundation, a healthy, hardy, vigorous vine; next productiveness; then size, flavor and quality of fruit. His experience, as I read it, has been not only with the production of seedlings hybridized, but with crossing of native varieties; and the results, so far as I gather them, are, that from the production or crossing of native varieties come the greatest probabilities toward a grape that will meet the exposure, rough treatment and climate of our American vineyards, and yet produce a grape that shall meet both the taste of an uncultivated people (to whom a certain amount must be sold in order to make a profit) and at the same time can be manufactured into a wine of quality superior to any yet known as the product of our native varieties. Mr. Campbell has fully and fairly spread out his experiments and results in the transactions of the American Pomological Society, as well as in the Ohio Horticultural Societies, to which I refer the reader for details.

Mr. Campbell regards (supported by testimoney favorable of all the States) Concord as the possessor of all the requisites of the vine, except in quality of fruit; and so far, according to my reading and knowledge, his last results are from the crossing of Concord and Delaware, using the Concord as the pistillate or female.

Mr. Ricketts, whose products have been numerous, and many of them beautiful grapes, as grown in his own partially sheltered garden, has, however, mainly pursued the practice of hybridizing our native sorts with the foreign.

The result, as I before said, of some fine varieties, which, by tests for wine purposes, have excelled all others known, he has named a few — and perhaps sold — of them. Of his seedlings yet under numbers, my recorded notes favor No. 10, a grape of a sherry wine color, produced by the Hartford Prolific, as female, and Purple Damascus; also No. 22, a large, compact bunch, large berry, greenish amber-yellow in color, produced by the Clinton, as female, and Muscat of Alexandria, as of great promise.

While these seedlings in the originator's own ground present as vigorous and healthy appearance, and perhaps more so than our native sorts, yet the tendency to mildew, which seems to prevail in all our varieties claiming in them foreign blood, tends to create a doubt that for the good of all we hope will be dispelled when these seedlings are sent out and tended in varios locations and soils.

Dr. Wylie, of South Carolina, has pursued the same course of Mr. Rickets, or rather Mr. Rickett's has followed Dr. Wylie, for I think the former was first in the field; but so far as I can judge from his own (Dr. Wylie's) reports, and from examination of some of the vines of his seeelings, the apparent constitution of the foreign is so retained in them that there is little promise of their ever becoming valuable as vineyard grapes or for general cultivation.— F. R. Elliott, in *Wine and Fruit Recorder.*

Oranges in Florida.

We have made diligent inquiry from old, experienced cultivators, and from those who have collected the traditions of orange growing, and the result seems to be that, apart from the danger of frost, the orange crop is the most steady and certain of any known fruit.

In regard to our own grove, consisting of 115 trees on an acre and a half of ground, we find that there has been an average crop matured of 60,000 a year, every year for the five years we have had it. Two years the crop was lost through sudden frost coming after it was fully perfected. But those two years are the only ones since 1835 when a crop has been lost or damaged through frost.

Our friend inquires with regard to the orange-insect. This was an epidemic which prevailed some fifteen or twenty years ago, destroying the trees as the canker-worms did the apple trees. It was a variety of the scale-bug; but nothing has been seen of it in an

epidemic form for many years, and growers have now no apprehension from this source.

The wonderful vital and productive power of the orange tree would not be marvelled at could one examine its roots. The ground all through our grove is a dense mat or sponge of fine yellow roots, which appear like a net-work on the least displacing of the sand. Every ramification has its feeder, and sucks up food for the tree with avidity. The consequence is, that people who have an orange grove must be contented with that, and not try to raise flowers; but nevertheless we do try, because we can't help it. But every fertilizer that we put upon our roses and flower-beds is immediately rushed after by these hungry, yellow orange roots. At the root of our great live oak we wanted a little pet colony of flowers, and had muck and manure placed there to prepare for them. In digging there lately, we found every particle of muck and manure netted round with the fine embracing fibres from the orange tree ten feet off. The consequence is that our roses grow slowly, and our flower garden is not a success.

Oleanders, cape jessamines, pomegrantes, and cape-myrtles manage, however, to stand their gound. Any strong, woody-fibred plant does better than more delicate flowers; as people who will insist upon their rights, and fight for them, do best in the great scramble of life.

But what a bouquet of sweets is an orange tree! Merely as a flowering tree it is worth having, if for nothing else. We call the time of their budding a week of pearls. How beautiful! How almost miraculous the leaping forth of these pearls to gem the green leaves! The fragrance has a stimulating effect on our nerves—a sort of dreamy intoxication. The air, now, is full of it. Under the trees the white shell-petals drift, bearing perfume.

But not to lose our way in poetic raptures, we return to statistics, drawn from a recent conversation with our practical neighbor. He has three trees in his grounds which this year have each borne 5,000 oranges. He says that he has never failed of a steady crop from any cause except in the first of the two years named, and in that case it is to be remembered the fruit was perfected, and only lost by not being gathered.

He stated that he had reports from two men whom he named, who had each gathered 10,000 from a single tree. He appeared to think it a creditable story, though a very remarkable yield.

The orange can be got from seed. Our neighbor's trees, the largest and finest in Mandarin, are seedlings. Like ours, they were frozen down in 1835, and subsequently almost destroyed by the orange insect; but now they are stately, majestic trees, of wonderful beauty. The orange follows the quality of the seed, and needs no budding; and in our region this mode of getting the trees is universally preferred. Fruit may be expected from the seed in six years when high cultivation is practiced. A cultivator in our neighborhood saw a dozen trees, with an average of 300 oranges on each, at seven years from the seed. Young seedling plants of three years' growth can be bought in the nurseries on the St. John's river.—*Mrs. H. B. Stowe, in Christian Union.*

American and Foreign Pears.

It is well known that the pear is more widely adapted to differences of latitude and climate than the apple and some other fruits, and that many which are among our best sorts at the North, also succeed well in the Southern States. We often hear the assertion that our native varieties are the only ones that we should plant or rely on; but we could never see how a certain number of seeds planted to raise new varieties should come up differently, whether planted in France or New York. Those which happen to prove best fitted to our climate, no matter where they originated, we of course retain, and reject the others, whether they be of European or American origin. These remarks are suggested by looking over a late number of a London horticultural work, giving the following list of the best twenty-four pears adapted to that part of England, which ripen n succession in the order named:

Doyenne D'Ete.	Buerre Bosc.
Jargonelle.	Duchess d'Angouleme.
Bartlett.	Buerre Diel.
Louise Bonne of Jersey.	Buerre Hardy.
Jersey Gratioli.	Marechal de la Cour.
Belle Lucrative.	Doyenne de Comice.
Suffolk Thorne.	Glout Morceau.
Seckel.	Winter Nelis.
Comte de Lamy.	Buerre Rance.
Flemish Beauty.	Josephine de Malines.
Marie Louise.	Bergamotte d'Esperen.
Thompson's.	Easter Buerre.

On looking over this list, it is interesting to observe that fully one-half are among our best popular pears in the Northern and Eastern States; six others, although not widely cultivated, stand high as good sorts; one or two others are good old pears of considerable merit when properly managed; while only three are found either unadapted to our country or of inferior merit. The fact that so many sorts prove excellent and stand high in the list, both in Southern England and in this country, offers encouragement to those who are about setting out orchards and fruit gardens in new regions of the country.—*Country Gentleman.*

That Barren Grape Vine.

By The Associate Editor.

In the December number of the Pomologist, Mr. Stauffer, of Lancaster, Pennsylvania, has taken our remark for part of his text that—"No journal can become popular that is purely practical, unless man ceases to think, and becomes a monkey." The more we see of the manifestations of nature, the more we are convinced of the truth of that saying. It was the careful study of the different manifestations of nature, their changes, interchanges and co-relations which led us to correct theories and practical results. The peculiar manifestations of electricity led to the discovery that it might be safely conducted upon a wire. This led to the discovery of magnetism and electro-magnetism, charging and discharging magnets by a simple helix, connecting and disconnecting the current of electricity, regardless of the length of the wire, which led to the discovery of the *Magnetic Telegraph*, that has brought distant nations together. So all facts had to first exist as fragments, suggestions, suppositions or theories, before they could be reduced to practice. With these few preliminary remarks we will indulge in a few upon his barren grape vine. It is the rare observation of bearing vines becoming barren that makes us look upon the occurrence as strange and mysterious. Many similar facts might be given in corroboration of its truth.

In the fall of 1860, we found a wild grape vine in the woods bearing a good crop of fine fruit. In examining it we found it had naturally layered itself. We took it up in proper season and divided it into three plants, and transplanted them in good, prepared soil. They did not grow well at first until we laid in the canes, since which time they have made vigorous growth, but strange to say they bloom but do not set any fruit, and to all outward appearance are male or barren vines. That they once bore we do know, but why they have become barren is the query. It is, however, a well established principle, that great vigor of growth is at the expense of productiveness. Therefore, whatever has a tendency to check this excessive growth and mature the wood, will increase productiveness. We have frequently seen grape vines pruned so short that they would scarcely set any fruit, and what would set were straggling and imperfect. This same principle is illustrated in trees first coming into bearing, they bloom freely but set but little fruit.

We saw this more fully demonstrated some years ago in Dr. Houghton's pear orchard, near Philadelphia, which bloomed profusely but did not bear well. This orchard was in the very highest state of cultivation, manured, shortened in, and showing very vigorous growth. The blossoms were submitted to an examination, and showed defective fertilization. We have frequently seen the same thing occur on the rich soil of the West, par-

ticularly under a high state of cultivation and excessive pruning. This defect may also be in a particular variety to some extent, as the Taylor grape, which is a very rampant grower, and will not set fruit well until old and pruned long, so as to produce short, well matured growth. The whole *Cordifolia* species show the same tendency and require long pruning or age to produce satisfactory results. A close examination of the Taylor grape shows a defect in both the stamens and pollen.

So far as we have examined the flowers of our barren grape vine they show the same defect in stamens and pollen, but to a greater extent while the pistils appear perfect. We believe a change of soil, long pruning or age will overcome this defect. But the true natural barren or male vine will never overcome its defects under any condition, for the flowers are defective in the pistils, and if they were perfect in stamens, anthers and pollen they could never be fertilized. I have no doubt but an examination of Mr. Stauffer's grape vine will show perfect pistils but defective stamens, anthers or pollen, the same as my own vine, but not as the true barren or male vine.

Deterioration of Soils.--How are They to be Kept Up?

By Wm. P. Lippincott, Vernon, Iowa.

Ed. Pomologist and Gardener:—We have had considerable rain hereabouts of late. It commenced when clean field ground was thawed out about three or four inches deep, and the effect has been to wash away large quantities of soil, especially of fall plowing, where the dirt was light and dry as an ash heap. These periodical washings of our soils will in time, it seems to me, leave us with only the bare clay. Perhaps the soil is not entirely lost to man as it goes to build the delta of the Mississippi, and may in time be cultivated there, producing oranges and other southern fruits, which may be sent back to us who had before raised corn in the same material; who knows?

There is much said about the deterioration of soils from over cropping, but how are they to be kept up? There can be nothing returned to the soil but what the soil produces, and not all of that. If we send to the Pacific for guano, or to the coast of Maine for gypsum, still the soil furnishes the ability to produce those articles, so that shift the subject around as we may we cannot return anything to the ground that the ground does not directly or indirectly produce, and as before said we cannot return all of that, because there is the evaporation and waste of our own bodies, and the same of all our domestic animals, our clothing, the wear and tear of all machinery, etc., etc., all of which is lost to the soil, except what little of it may be returned by the atmosphere. Is it not to the atmosphere, the great receptacle of nearly all that we lose, that we must look to for a restoration of these losses? The rich prairie lands of Iowa that have been in cultivation for thirty years and over show a decided falling off in productiveness—two causes operating, washing and cropping. Where will it end?

But there are countries in the world that have been under cultivation for many thousands of years, with populations several times as dense as our own, and still the people live. How is this? How have they managed to keep their soils in condition to raise anything? Their crops are as exhausting as ours, and they are subject to washes like ours. The delta of the Ganges grows faster than that of the Mississippi. True, the people are not so profligate as we are, they save everything, even down to their old shoe-strings, for manure. But the land produces their manure, it produces their shoe-strings, and as much cannot be returned as is taken off. What then has kept these lands in tilth for so many thousands of years? Are they gradually running down even now, as ours do? Is that the reason why in some of the Eastern countries the people eat snails, snakes, toads, rats, mice, lizards, etc? Is this gradual washing and exhaustion of soil the cause of the present dreadful condition of Persia? Is Persia approaching the condition of Sahara? Was not this wide expanse of barren sands once a habitable country?

Man is a good deal like other animals. Give a horse, a cow or other animal a good house, and tell him to live in it, and take good care of it, and how will he do it? He will fill it with filth, and then live out doors; this he cannot help, although he might paw out a little of the dirt. Man cannot hinder the washing and wearing out of his lands, but he could do better than he does.

A Smyrna Fig -- A Train of Thought.

The editor of the *Plantation* has been presented with a few fine Smyrna figs, and and while enjoying one of them, a train of thought was suggested, which he jots down thus :

"This fruit was plucked thousands of miles from this spot, by an Ottoman hand. It was dried under an Oriental sun. It had sailed over the Mediterranean. Passing through the Straits of Gibraltar, it had crossed the Atlantic Ocean to New York. From New York it had sailed Southward, doubling Cape Hatteras and landing at Savannah. From Savannah it had traveled three hundred miles by rail to Atlanta, and, as the end of its perils by land and sea, it was being devoured in his sanctum by a remorseless Georgia editor.

"Well, why was this fig brought here? Is the fig a rarity with us, like the cocoa-nut or pine-apple? On the contrary, in portions of the South it is the commonest of fruits, growing like a weed without cultivation. Is our fig inferior? We cannot believe that Turkey can produce it in greater perfection. Is there any mystery in the art of drying and preparing it for market? We are told that the process is cheap and very simple. Yet, while this fruit grows so readily and in such perfection, thousands of dollars are annually expended for figs from Turkey. We will venture to say, if the fig tree grew at the North as it does with us, that no more figs would be imported from Turkey.

"No doubt that some of our readers are familiar with the process of drying and preparing the fig for market. They will oblige us if they will furnish for *The Plantation* an account of the drying process.

"We suggest a fair trial of it during this spring. A fig orchard might be made a source of large revenue. The subject commends itself particularly to those ladies in the lower country who are suffering from straightened circumstances. No orchard can be so easily planted and so easily matured as a fig orchard. Before the apple and pear have well begun their growth, the fig would be in full bearing.

"This is one of the smaller industries which we have heretofore overlooked. We must not despise the day of small things. The fig, the olive, the sumac, the ground-nut, if cultivated in situations suitable to them, in the aggregate would add materially to the wealth of individuals and of the South."

Seedling Apples -- Their Disposition.

When our Horticultural and Agricultural Societies offer premiums for the best seedling apples, it is not intended that seedlings, which have been named and which have already been on exhibition for premiums at previous fairs, shall be considered the second time for such honors. When a seedling has been introduced, and recorded in the records of the State Horticultural Society and named, it ceases to be a seedling, but is put down in the books as a standard apple, and takes its place along with the great list of the different varieties of apples on this continent. The Baldwin was a seedling, as much so as the Wealthy, or any other apple originated in Minnesota. No one would think of calling the Baldwin a seedling now. So with these apples, which are the product of our own State.

Hereafter all seedling apples placed on exhibition at our fairs should be named and retired, from the date of the fair and from the date of the exhibition, from the seedling list. They should be known after that period as a standard apple, originated by such a man, named at such a time, and it should not be allowed to compete at any subsequent fair as a seedling.

We write this because complaints have been made that seedling apples have been allowed to take premiums as the best apple at several annual fairs. The only question is, When does the apple cease to be known as a seedling? Evidently and certainly, after it has been named and its name recorded in the proper books or papers. — *Farmer's Union.*

A gentleman in the vicinity of Terre Haute, Indiana, reports seven hundred and forty dollars net profit from one acre of grapes last season.

High Culture of the Peach Conducive to Hardiness.

A correspondent of the *Western Agriculturist*, with much plausibility, advocates high culture of the peach as conducive to hardiness of the fruit buds and the longevity and fruitfulness of the tree.

STUMP THE WORLD.

"It is an old saying that doctors will disagree in regard to peach raising. I will disagree, in several particulars, with the opinions of different members of the Adams county Horticultural Society, and with due respect to those opinions. I think I speak under-

standingly, as I have had some experience in peach growing. Some advocate the let alone system in cultivation. I advocate the cultivation of a peach orchard as thoroughly as that of a corn-field, and for the same reason, to make it grow. If it is a very dry season cultivate as late as the first of August; an ordinary, or a wet season, until the first of July. My reason for this is, we must keep the peach in as healthy and good growing condition as late as we can, say the first of October.

"Oh, say you, we do not believe in the late growth of the peach. Neither do I, in the second growth. If you do not cultivate, and keep your trees growing, they will stop about the middle of July. When that is done the terminal bud is formed, and the growth is stopped. After lying dormant a month or six weeks, our warm fall rains come on, the sap again flows freely, the tree starts to grow, and the fruit buds being easier to start than the terminal bud, they are forced or started. Consequently, when the first severe cold snap comes, they are all killed. If you keep the tree growing, so that the terminal bud will not be formed until the danger of a second growth is past, or the first light frost, there will be no danger of the fruit buds being forced or started.

If the fruit buds are not started in the fall they will stand very severe cold. I have known them to stand twenty degrees below zero, while buds which had been started were killed with a much less degree of cold, even when only down to zero.

Some recommend poor soil for the peach. I would like to know what they mean. I wonder if some of them would not get fat if they were set down to a table with no grub on it—(I don't mean peach grub, but food.) A peach wants food, rich food, and plenty of it. It wants rich soil. There is hardly a fruit tree which takes up and consumes food faster, or more of it, than the peach, and we have got to keep up the supply.

The cry is, that the peach is short-lived. We would all be short-lived if we were deprived of food. Some will say that fellow is moon-eyed. Better be moon-eyed than sun-struck. Go over the country, and see the weakly, consumptive, sickly trees; they look as if they were all starved to death, and all wore corsets. Feed your trees to keep them in a healthy and growing condition.

As to the kind of food for the peach. After growing in good soil four years, I would advocate putting around each half a bushel of ashes, half a bushel slaked lime, and one quart of salt, well mixed; spread it equally around the tree, extending out six or eight feet; then fork in; do this in the fall, and once in two years thereafter, and you will find that your trees are healthy, and will bear larger and finer fruit, and live longer than any member of the Adams county Horticultural Society. I can show good, healthy trees that are twenty-three years old, of the Old Mixon Free, Old Mixon Cling, Stump the World, Early York, Hayworth, and some others, and one tree thirty years old. A peach does not get rightly into bearing until it is twelve or fifteen years old, yet some have got a notion into their heads that that is about the time for them to be used for firewood. I sold from three Old Mixon Free trees standing side by side, one season, when they were nineteen years old, sixty dollars worth of peaches to one man. The poor soil and non-cultivate advocates would have had them among the things that were."

The Blight.—Is it Caused by Sudden and Severe Freezing?

By the Associate Editor.

As the Corresponding Editor has advanced some theories on blight which we think cannot be sustained, we believe it a duty we owe our readers to reply to them. We do not pretend to know as much as some about its peculiar manifestations, but we have a few facts that may throw some light upon the subject.

If *blight* is caused by the sudden and severe freezing of the wood, it is strange that young trees are not as much affected as older trees, and it is yet more strange that it should affect those which were not frozen at all. This theory of both *cold* and *heat* producing blight is too much like blowing cold or hot to suit the occasion. For he says, "If, then, the first kind of blight is produced by the freezing of the sap, so as to rupture the cells by its expansion into crystals, so also is the second, or sun-scald blight, produced

by the direct rays of the sun destroying the vitality of the sap." If these theories were correct, then there should exist some unmistakable relation between cold, heat, and the blight, as cause and effect; therefore, the more severe they were the worse the disease. Consequently, the more tender the trees, the more they would be injured, and the worse they would be blighted; for the Doctor says, "the deeper the freezing has gone, the more fatal the disease." If his theories were true, then blight would be governed by extremes of cold and heat, and it would be much worse in *Western Kansas*, *Nebraska*, and *Minnesota*, where these extremes are the greatest, than it would be in *New Jersey*, *Delaware*, and *Maryland*, where they are much less. But this is not the case, for it scarcely exists in the former, while it is very destructive in the latter.

It is singular, according to his theories, that Tallman's Sweet and Keswick Codlin, which withstand such hard freezing without injury, should blight so severely, while Littagcskee, which is so tender, should entirely escape it. But it is still more singular that the various crab apples, which are so perfectly hardy in almost any climate, and mature their wood so early and perfectly, should be the most subject to blight of any. The most severe and sudden changes to cold we ever experienced, and which done the greatest injury, occurred in the falls of 1858 and 1862. In both instances it killed all the peach buds, and very much injured the fruit trees. We had over 40,000 apple seedlings killed, and nearly all kinds of grape vines were killed to the ground. The nursery stock was severely injured, and the inner bark of fruit trees very much discolored. Yet we grafted from those injured trees both seasons more than 200,000 grafts, and never had better success, and not a single tree blighted either season, nor up to 1866, but since that time we have had more or less of it.

But the most conclusive proof that freezing has nothing to do with it is, that cions not frozen at all, will, when grafted, blight when put upon perfectly hardy trees not subject to the disease in May and June, before hot weather, and that seedlings will sometimes blight the first season from the seed. We fear the Doctor has confounded *blight* with *winter killing*, which often occurs with tender trees by severe freezing, but is as different from what is usually called blight as his *sun-scald*. This will no doubt account for all of his apparent facts which he puts so much stress upon, and which corresponds with our observations at the principal periods mentioned. We may not be able to fully show how *blight* is produced, but that it does exist under certain conditions favorable to fungoid diseases, will not be denied. Some eight years ago in the *Horticulturist*, we pointed out the distinction between *grape-rot* and *mildew*, and showed that the "*rot*" was due to *excessive moisture*, and *mildew* to *excessive dryness*. Experiments with the mildew showed sulphur a remedy both in this country and in Europe, but it did not cure the rot, showing them to be different maladies. Recently Mr. Thomas Taylor, who is conducting the microscopic investigations into fungoid diseases at the Department of Agriculture, presented us plates of the observations made, and in *Moore's Rural New Yorker* we find the following conclusions, which confirm our theory:

"On the suggestion of Mr. Sanders, the experiment of keeping the grapery of the Department very dry for a few days, resulted in so rapid a development of the European mildew (*Erysiphe Tuckeri*) that he obtained for the first time, either in Europe or America, the perfectly ripened conceptacle, or fruit of that variety. It follows that the European mildew is developed by *dry* heat, while the American mildew (another fungus) requires moist heat." "On the wood of last year's growth he finds the *mycelium*, or cobweb like branches of this pest, capable of resuming active growth when subjected to warmth and moisture." "There is also an American variety which Mr. Taylor has found the conceptacles," produced "under the same conditions as the European."

Here we have demonstrated facts that under certain conditions of *dryness* or *moisture* these various fungoid diseases are developed, and rapidly spread. Whether the dryness or the moisture is the cause of the disease or the fungus, we do not now pretend to determine, but that it requires these conditions before it spreads must be admitted. This corresponds exactly with our former views, and also with our more recent observations; for

previous to 1865, when we had but 31.34 inches of annual rain, we had no blight, but since the increase to to 42.60 inches, we have had the blight, and at Manhattan, Kansas, where it has not amounted to 31 inches, they never had any blight or disease of the grape. And at the particular season between the tenth of May and the tenth of June, when the blight is most prevalent and fatal, we have had an average of 7.39 inches of rain, which has been two inches more than the average of either month, and more than four inches above the average of any of the months following. This and all other observations show that *blight* and *grape rot* exist, and are worse under conditions of excessive moisture, and everything which tends to dryness has a beneficial effect. We could give numerous facts of general decay being produced in a short time by excessive moisture on growing vegetation, if it were necessary.

Huntsman's Favorite Apple.

BY THE CORRESPONDING EDITOR.

We have examined two specimens of this, at present, popular apple in Missouri and Kansas, upon the merits of which our opinion has been asked. In reply, for cultivators in Missouri and Kansas, would say, the fruit is of fine size and of beautiful color. But in these respects, not more so than very many others; hence there is nothing in this direction to make this variety eagerly sought after, or largely planted by Western planters. In regard to its flavor, if the specimens sent us are correct representatives of the fruit, we would say, it is simply *good*, not *very* good, nor *best*. A longer acquaintance, however, with this apple, may change our opinion in regard to its merits. But from present impressions, we are of opinion it should take a back seat, and be advanced to a front seat only after it has proven itself superior in some desirable trait above anything now before the public.

While we would advocate *most earnestly* the effort to introduce new kinds from seed, crossing or hybridizing, we can at the same time but deprecate the apparent haste shown by some writers, of throwing everything not known to themselves as new and desirable, before the public. Such persons throw more difficulties in the way to successful horticultural knowledge in one season than all the cautious, discreet laborers in this field can remove in many seasons.

If the National Pomological Society will thoroughly purge the nomenclature of her catalogue, and urge upon all State and local Societies to do the same, we will have made a long stride in the right direction for curing this evil. If added to this, the conductors of all horticultural journals would set their faces against the admission into their columns of anything as new, whose history could not be satisfactorily made out, we would not be long in effecting a removal of this *plague spot* from our catalogues.

The Miner Plum—Why Curculio Proof?

It seems to be the universal verdict of those who have tried this plum, that it is *the plum* for the north and west. The fruit is of good size, good quality and abundant quantity, and last, though not least, it is *practicably*, if not *entirely*, Curculio proof. In saying this, it is not denied that this fruit is occasionally punctured by this insect; the curculio and plum gouger both puncture this plum and deposit their eggs, though to a much less extent than other varieties; but it is claimed that this fruit is very little injured by these insects, and the fruit seldom if ever drops from the tree in consequence of their attacks. Now why is this? A question more easily asked than answered. These insects know by instinct the fruit adapted to their wants and choose, as a rule, the variety of fruit best suited to them; showing by their partial avoidance of this, its want of adaptation; but in cases where the puncture is made and the egg deposited in the fruit, it is quite common to see the scars of these punctures on this plum when the wound has healed and no larvæ has been produced. Various theories are held to account for this, the most plausible of which is that the juice exudes so freely from the puncture as to wash out the egg from the fruit. Another theory is, that the juice is not suitable, by excess of acidity, or some other cause, to the feeding of the insect. But we would suggest still another as the more probable one. It is well known that this fruit is of slower development than any other of its kind, having very little pulp or life sustaining juices until late in the season, and hence in our opinion arises its want of adaptation to insect life. — *Galena Advertiser.*

Bees and Grapes.

I have read with interest the numerous articles published in the back numbers of the *Country Gentleman*, most of which seem to agree that the bees did great injury to grapes. I beg leave to differ with these gentlemen on that subject, from the fact that I have raised bees and grapes for the last thirty years, and have been a close observer, and have never yet discovered the first grape injured by bees. It is true when the skins of grapes are broken, the bees will suck out the sweet, but that I consider a saving, as the grape would rot soon after the skin is broken.

Some twenty years ago I built me a bee-house, or great palace, (such as some old fogies still use,) and planted Catawba grapevines around it to shade it from the sun. These vines soon ran all over the house, and for ten years or more were fairly loaded every year with grapes of the richest quality. Oftentimes when standing by the entrance eating grapes, I have burst a grape and laid it on the alighting board to see how quickly the bees would lick up the juice, but never saw one on the grapes on the vines.

Some ten or twelve years ago I concluded to engage in wine making, and planted three or four acres of Catawba vines, with the intention of increasing my vineyard as fast as I gained knowledge of wine making, etc., but after the vines had borne fruit two or three years, the grapes began to rot so badly I abandoned the idea of enlarging my vineyard, and for the last three or four years the grapes rotted so badly that I became discouraged and cut up the vines. During the first few years when the grapes were healthy, no grapes were molested by bees, although I kept an apiary of one hundred stands or more all the time, within less than ten rods of the vineyard.

The first year or two after my grapes began to rot in my vineyard, I had some old vines trained on trellises and arbors in my garden that seemed to be healthy, and not a grape on these vines was touched by the bees, while at the same time every rotting or imperfect grape in the vineyard was covered with bees.

The last two years I have not had a single good perfect cluster of grapes on any of my vines, and I have twenty or more varieties. All rot before they mature.

Now, sirs, I think if these men who are so annoyed by the *bees* as they *think*, will be patient a year or two longer, they will find the difficulty is in the grapes *rotting* or *bursting* open before they mature, and the bees are simply taking what would be lost.

I would advise that gentleman not to try the German's receipt for killing the bees, as he might get himself into a big lawsuit, or if his apiarian neighbors are of a retaliative disposition, they may slip over some night and *salt* his sheep or cows out of a bottle that has a *skeleton* of *bones* on the label.

Before going too far, suppose some of these anti-bee men procure a microscope and examine the jaws or mouth of the bee, and they will see that it is not capable of cutting the skin of grapes or other fruit like the hornet-wasp and yellow jacket, that get the material for building their nest by gnawing it from wood, while the bee's mouth is constructed for working soft wax. So make war on the hornet-wasps, etc., and examine the grapes closely and I think you will find the grapes are diseased. I am a great lover of grapes, also of bees and honey, and believe in doing justice to all men and *things*.— *Correspondence Country Gentleman.*

Humbuggery in Wines.—In speaking of the adaptability of the southern slope of the Blue Ridge to the culture of the grape, and of American wines in general, the Richmond (Va.) *Whig* of the 29th ult., remarks: "There is besides, a great deal of humbug about wines. Many estimate the quality of the article by its cost—while others deem nothing fit to be called wine which has not crossed the ocean. The fact is, the taste for all liquor is artificial and acquired. The sealing-wax flavor of the German wines, which is indispensable to genuineness and so much esteemed by connoisseurs, is imparted by the cement used to stop the leaking of the casks. And so of other highly-prized wines. The musk flavor of American wines is imparted by the grape, and is quite as respectable as the sealing-wax of the Germans. We have only to educate our taste to like a genuine grape juice, and give it age, to rate our own productions more highly than most of the foreign concoctions."

Growth of a Seed.

We noticed among the horticultural queries last week one regarding the germination of the acorn. We apprehend the principle of growth in all seeds is the same when they are made up of two cotylidons, as familiarly exemplified in the split pea. It matters not in what position the seed is placed in the ground; the result, when germination takes place, will be the same. Very soon after a seed is planted in the earth, if the conditions of moisture and warmth are favorable, it begins to, in ordinary language, "sprout." A shoot is pushed upwards and another thrust downwards; but let it be clearly borne in mind, that until the leaf expands, and the young root enters the soil, the plant derives nothing from the earth and air except water. It lives wholly and solely upon the starch and gluten contained in the seed. But the most curious part of this transformation scene is observable in the almost magical change these two materials undergo. Both are insoluble in water, so it is impossible they can be taken up and conveyed along the vessels of the young plant they are intended to nurture unless chemically changed. This change is thus accomplished. Directly the ascending and descending sprouts appear, there is found at the base of the germ a minute quantity of a white and very soluble substance, which has been named *diastase*. This remarkable material at once acts upon the starch, renders it soluble in the sap, which takes it away just as it may be wanted to supply the two sprouts. Starch thus changed is called *dextrine*, and this is still further changed into sugar as the sap ascends. By the time the food stored up in the seed is thus conveyed away in its changed condition, the two leaves have opened, the root has made its way into the soil, and the tiny plant begins life on its own account. In the ripening of an ear of grain a converse system of changes takes place. The green grain of wheat is sweet to the palate, but as it browns and ripens its sweetness entirely goes away. In this case the sugar of the green grain has been changed into starch in the ripe grain, which starch so stored up, is again, whenever that grain germinates, destined to be rechanged into sugar for the supply of the embryo plant, until by aid of root and leaves, it can take care of itself. We scarcely think the acorn is appreciated as it ought to be. It is extremely nutritious, and contains seven per cent of sugar, and weight for weight is nearly as nutritious as the ordinary horsebean. — *Land and Water.*

Tree Planting--Depth, Soil, etc.

By Peter M. Gideon, Excelsior, Minn.

Ed. Pomologist and Gardener: — As the planting season is just at hand, perhaps a few remarks on tree planting would not be amiss, as I have had quite an experience in that line, having planted trees in nearly all soils and exposures.

In stiff clay soils I find trees to do well at about the same depth they grew in nursery rows; but where a loose loam overlays the clay the trees should be set deeper, and that in proportion to the depth of the loam, so as to make sure that the lower roots dip into the clay.

Our top soil is a deep, rich loam, in which we have lost thousands of trees, as later experience has taught us, all for not being deeper set, or heavily mulched. For mulching will save them, though only set in the loam, and is very essential at any depth of planting, but indispensible in an orchard set in loam and at the common depth of planting. Trees set in loam will suffer more from drouth or frost, than those set in clay at same depth of planting; but where there is from six to twelve inches of top loam, and the tree is set so as to get the roots well into the clay, it will stand more drouth or frost without mulching than one in clay, the top soil serving to some extent as a mulch. But be the soil and depth of planting what they may, mulching is beneficial in all cases, saving the tree from bark bursting, as well as the roots from drought and frost. And in all cases the mulching should be applied before the first freeze in fall, as it is the first freeze that does the damage of bark bursting and root killing. Though further south such damage might occur after warm spells in winter that had caused the sap to start, as it is a sudden, severe freeze when there is sap flowing that bark-bursts and root-kills, which mulching would save in any country, by preventing the freezing of the ground, in junction with the tree, and thus allowing the descent of sap.

Premium Peach Orchard.--How Made.

The Michigan State Pomological Society awarded to W. B. Mason, of Fruitport, the first premium for the best three year old peach orchard, and of which the Western Rural says: "Mr. Mason cleaned twenty acres, and in the spring of 1868 he set out fifteen hundred peach trees, and in the spring of 1869 he set out twelve hundred more peach trees. In setting his orchard he planted the trees sixteen feet apart, setting them about two inches deeper than when in nursery rows. The trees were one year old from the bud, when he thinned them back to whips, and cut off about one-third of the main branch. The *first* year he planted potatoes in the orchard, and cultivated six times. The *second* year he did as before, and raised a fine crop of potatoes, Since that time he has not put in any crops, but has kept the plow and cultivator moving, so that the weeds have no chance, and the trees nothing to do but grow.

Mr. Mason has not cut his trees back as much as many of his neighbors. The second year he pruned back lightly, cutting off about one-fifth of the first year's growth. The third year he cut back one-fourth, and thinned out the branches, giving shape to the tree. His aim seems to have been to direct the branches upward, and prevent their spreading outward, and also to so shape them that the sunlight can freely reach the center of the tree. The fourth year cut back very little, but adopted the same plan as the year before in thinning out the branches and shaping the tree. He made a mistake, however, by cutting off too many of the small fruit-bearing branches, thus cutting short his crop. The second year Mr. Mason gathered a few peaches, the third year enough for himself and friends, and last year his orchard netted him a handsome profit; now his trees are full of buds, promising an abundance of Crawfords, Barnards, Hales, and Smocks. The soil is sandy, and has never been enriched with manure or other fertilizers. There is, however, as with all the sandy land in this locality, vast numbers of small shells scattered through it.

The Barnard predominates in Mr. Mason's orchard, and is his favorite peach for profit. It has never failed in this locality. If the tree is prevented from bearing too heavily, and receives good cultivation, the Barnard will produce fruit every year, and is but little below the Crawford in appearance, and is peer in all other good qualities.

About Roses--Which are the Best Twelve?

A correspondent of the *Cottage Gardener* having written to fifteen of the most distinguished rose growers of Great Britain, asking them to name thirty six roses, and out of the thirty-six to name which they each considered the best twelve, has received their answers. The result showed that of all the roses which were named, only three were on the record named by all as worthy to be placed on the first twelve. These three roses ought to be universally known, as every one who cultivates flowers wants the best roses as a matter of course. These three are: 1, *Marechael Niel*; 2, *Baroness Rothschild*; 3, *Marie Baumann*; after these come in order, Charles Lefevere, Alfred Colomb, La France, John Hopper, Countess of Oxford, and a host of others. It is remarked that of the roses named in the list, there were one hundred and sixteen varieties altogether that were deemed worthy to enter into the best thirty-six. The selection of roses thus made is worthy of being particularly mentioned, as the rose growers who made the lists are men who have a very high standard of excellence, and are not at all likely to be deceived about the qualities of a plant which they have made a study, and have had opportunities for observing that are unequaled, at the rose shows of England and France.

Dwarf Apple Trees. — A correspondent of the *Ohio Farmer* says he has three hundred or more of dwarf apple trees now six years old planted out at a distance of six by six feet, each year loaded with fruit from the ground upward. He says all there is of growing dwarf apples is to first form the tree, and then let them alone.

The value of opium imported through the custom house at New York City, in the year 1871, was $1,299,091.

Management of Young Evergreens from the Forest.

Samuel Edwards, Jr., of La Moille, Ill., who is largely engaged in spring time in the forest evergreen trade at Green Bay, Wis., gives the following directions for the management of forest seedlings:

Have good ground, thoroughly prepared, fine and mellow, at least a foot deep. This should be done beforehand, to prevent delay when the plants are received. Put the boxes immediately in a cool, shady place, and only unpack as wanted for planting. Take out a few at a time and "puddle" the roots, coating every fibre with mud about the consistence of cream. Plant with garden trowels, a little deeper than they stood before, and pretty thick — say two or three inches apart and not in rows at all — making the hole for one as you press the dirt carefully against the last one before. In this way a man will set several thousand in a day — more than double what he can do with a spade. Use a wide board to stand upon, in planting, so as not to tread upon the prepared ground. As soon as planted water them freely (thoroughly sprinkling with a water pot).

The plants must be shaded immediately. A convenient plan is to leave the beds some four to six feet wide, running east and west, having a board twelve or eighteen inches wide, set up edgewise, on the south side, and stakes on the north; and upon these, poles and brush with green leaves upon it, forming a dense shade at first, which will gradually become thinner, as some of the leaves drop off, and then plants become able to bear more light. The stakes should be some higher than the board, giving the whole top a slope towards the south, so as to admit light and air from the north. They will require very little further attention, except an occasional liberal watering in *very dry* weather, and keeping out weeds, which will be few, if well shaded.

In the following spring, the shading should be removed. The plants are better to stand in the beds two years, thinning them if too thick; when they should be transplanted into nursery rows. Treated in this way, but a small proportion will be likely to fail.

Mesquite Gum of Texas.—Mr. F. Kalteyer, Treasurer of the Agricultural and Industrial Association of Western Texas, says the mesquite gum of that region is almost identical with gum arabic, having been in use there for medicinal and technical purposes, especially in the preparation of mucilage, gum drops, jujube paste, etc. The past year it has become an article of export, some 12,000 pounds having been gathered in Bexar county, and as much more between that and the coast. No gum is gathered west of Bexar though the drought was favorable to a large crop. This gum is hardly known east of the Brazos. It exudes from the stem and branches of a *Mimosa*, several species of which grow in Texas, New Mexico, and Arizona. One of these species *Algarobia glandulosa*, (Torrey and Gray, N. A. F., 399,) is rarely met with below the mountain regions of Western Texas. The species most common in Bexar county grows from twenty to forty feet high, and eighteen inches thick. From it charcoal is manufactured. It is generally used for picket poles, being very durable. It is also made into handsome furniture, the grain being very fine, It grows where no other fruit tree would live. It was favorably noticed in the last annual report of the American Pharmaceutical Association.

Destruction of Evergreens. — We learn from some of our New England exchanges that the past winter and spring have been very disastrous to evergreens and plants all over the Eastern States. The Boston *Journal* says: "We hear of some of the largest nurseries which lost more than half their stock of this class of trees. We are told that Mr. Hunnewell, whose beautiful place at Wellesley is so well known, lost over 2,000 Rhododendrons, and the noted Parsons nurseries on Long Island lost great quantities of Rhododendrons and evergreens. The same fact is true of other nurseries. Strawberries have also suffered terribly, and it is the judgment of some of our most experienced horticulturists that nearly one half of the strawberry vines in New England were killed by the severe winter. This matter was the subject of discussion at the meeting of the Horticultural Society, on Saturday, and a committee of which Hon. M. P. Wilder is chairman, was appointed to investigate the subject and report upon it.

Entomological.

Grape Vine Insects — What are They?

Entomological Ed. P. & G. — I enclose you a few sample insects, collected by Rev. F. M. Dimmick, pastor of the Central Presbyterian church of this city, from his grape vines. Probably you can give these little destructive pests their appropriate names and the means of prevention. — Jeremiah Behm, *Omaha, Neb.*

Remarks. — In our first report as chairman of the Committee on Entomology, to the Iowa State Horticultural Society, 1871, we gave the natural history of the Grape Vine Flea-Beetle, (*Haltica Chalybea, of Illiger,*) and also in the March number, 1871, Volume two, of the Western Pomologist, we again published a description of this beautiful, though pestiferous, little steel-blue Beetle, as it is sometimes incorrectly named. Early in the season it feeds upon the buds of the grapevine; is a very nice workman, as it scoops the buds out as neat as a carver could do the work with a sharp gouge. Such was undoubtedly the kind of work those sent by you were doing for your friend when captured. Later in the season they will attack the leaves of the vine, and eat holes in them. So also will their young the last of May and the first of June. The larvæ, a brown worm, if numerous, will cut the leaves into mere shreds during the month's time they feed. When full-grown they form egg-shaped cells beneath the surface of the earth, and pass into pupæ, from whence in a few weeks more come forth perfect beetles, and feed the remainder of the warm season on the leaves of the Grape and Alder (*Alnus Cerulata*). Their feeding on the buds, before the leaves put out in the spring, is far more destructive and much more to be dreaded, than leaf eating in the fall.

The Beetle, which hibernates in cracks under the bark and in rubbish during winter, is during cold weather sluggish, and may then be destroyed by burning up the rubbish about the vineyard. Whitewashing the stakes and vines would undoubtedly stop up many cracks and be the means of destroying some, if not all. After warm days have come, and the little fellows are active, these remedies would be worthless; but much good can be done by destroying their orange-colored clusters of eggs by crushing them, and the larvæ by dusting the vines when the dew is on, with fresh air slacked lime. Length of perfect imago, .013 of an inch; color, steel-blue, sometimes green and purple; length of larvæ, .025 of an inch; color, brown.

Bees.--Peculiar Management.--German Method.

By A. L. Hatch, Ithaca, Wis.

Ed. Pomologist and Gardener: — I have a swarm of bees that I gave peculiar management last summer, on a plan of a German writer. About the last of June, and three or four days previous to the blooming of basswood trees here, I examined the hive and found the frames to be well filled with comb almost entirely occupied with brood. Although a new swarm, the colony was a very strong one, having a very large number of bees. The basswoods gave promise of an abundant bloom, and consequent large yield of honey. I removed the queen from the hive, leaving them queenless until they could rear another from the brood they had then, which they did, and in about three weeks had her laying eggs. An examination of the hive about four weeks after removing the queen showed the hive to be well filled with sealed honey and a few young bees, showing the presence of the new laying queen. I took from the hive at that time thirty-five pounds of surplus box honey, which sold for twenty cents per pound, or seven dollars, in all.

The philosophy of this plan of management is as follows: Had there been a laying queen in the hive during the bloom of basswoods, she would have kept the cells well filled with brood, and there would have been but little room in the hive to store a winter's supply of honey. The care of this young brood would have required considerable

labor on the part of the bees. On the failure of the basswood honey harvest, (which here lasts about twenty days) we expected, and there was a dearth of honey for bees to collect. If the queen had not been removed, there would have been at that time a great excess of bees, with a hive full of brood instead of honey, and although strong in numbers and giving a good amount of surplus, the swarm would doubtless have went into winter quarters quite light in honey, but heavy with bee bread and far too many bees. The removal of the queen lessened the production of brood, as the brood already in the cells matured and came out, room was made for the rich harvest of honey from the basswoods. The strength of the colony was maintained by the maturing brood coming from the combs. The brood was soon sealed over, requiring no further care from the bees, and they could and did give their entire attention to collecting honey. And lastly, we have a new queen in place of the old one, and our swarm is now one of the best in our whole lot.

Introducing Queen Bees.

Ed. Pomologist and Gardener:—There is probably but one method of introducing queen bees to queenless stocks that will *invariably* succeed; and it is possible that may fail occasionally. After having tried nearly every plan heard or read of, and lost many valuable queens, the writer has concluded that the method described below is the only safe one now practiced:

To be sure of success you *must* have movable combs. Take from one or more colonies three or four frames, containing sealed and hatching brood and honey; leave all the adhering bees on the combs, only be careful not to take a queen. Place these three or four combs into an empty hive, at one side or end, and adjust the division board close to them. Set the hive at considerable distance from all others, and leave it twenty-four hours. Now if you are sure there is no queen present, this small colony is ready to receive a mother bee; but you must use the precaution to confine her in a wire-cloth cage, and place the cage between two combs, near the center, and let it remain thirty-six or forty-eight hours. At the end of this time remove the stopper from one end of the cage, and tie over it (the open end of the cage) a single thickness of newspaper, wet and sweetened with honey. Replace the cage and close the hive, and the bees will soon eat through the paper and liberate the queen. Six days thereafter, be sure there are no queen cells in the hive. Build up the colony by giving frames of sealed brood, with *no* adhering bees, one each week. — W. C. Condit, *Howard Springs, Tenn.*

Insects for Identification.

Entomological Ed. P. & G. — Enclosed please find some insect eggs. Those on the apple-twigs are doubtless Katy-dids, and the others eggs of the *Mantis Religiosa.* Our little friends, the lady bugs, are already on the alert and very numerous, especially the twelve-spotted variety. Chinch bugs are sporting about in considerable numbers, and take the wing on summer-like days. — Geo. Walters, *Fort Scott, Kansas.*

Remarks. — The eggs spoken of came all right. Glad to receive such favors. Will give them the proper attention. May have more to say about them in the future.

Ants in the Orchard and Garden. A correspondent of the California Agriculturist says: "We see the ant pronounced a nuisance by some writers on agriculture, but our experience and observation leads us to the contrary opinion. While they do little or no actual damage to vegetation, they drive away and destroy lice and other insects which would do serious damage. We have long looked upon the ant as a friend, and are glad to see some others defending the industrious ant."

New Parasite of the Spruce.—Much interest has been excited among botanists by the rapid development upon the black spruce and balsam firs of Northern New York, of a parasitic plant, belonging to the genus *Arcenthobium*, related to the Mistletoe.

Editor's Portfolio.

Acknowledgments, Etc. — We have a long string of acknowledgments to make for favors received — fruits, plants, seeds, books, etc., since our last issue, all of which will receive attention in June number. For the last two months out-door business in the orchard and nursery has required the most of our attention.

Eastern and Western Grown Apples. — A correspondent of the *Maine Farmer* draws rather a forcible contrast between home grown apples and those found in their markets from the West, by pronouncing the former "simply disgraceful, as any one who walks in the streets of Bath can see daily." In support of this assertion he says: "Take the Baldwins lately exposed here in a shop window — of the sizes of different sized hen's eggs, down to the smallest, pale, yellowish, tasteless, dry and astringent. Contrast with these the large, well grown, finely and high colored Baldwins from the West, lately retailed here. Contrast the little Roxbury russet grown in Maine with the large, broad, fair and handsome apples of the same kind grown in the West, both now on sale here. This Russet, in many parts of the West, is called the Putnam Russet, (see Warder on Western apples.) It is past its season now — that is, the Western grown. But its appearance in contrast with those grown here and the miserable things called Baldwins, grown in the grass without manure or care, about a bushel or two to a tree, ought to make every Maine farmer blush with shame. It need not be so.

Changing Dwarf Pears to Standards.—An agricultural exchange gives directions for changing dwarf pears to standards.—"Make a sloping cut with a drawing knife into the trees below the intended surface of the ground, cutting into the wood and running up two or three inches, and into these cuts crowd pieces of glass to keep them open. Two or three cuts should be made in each tree. Cut all pear wood and not the quince, and leave bark on the tree between the cuts, so as not to girdle it. It is well to mulch the surface after covering the cuts with earth, to keep the earth moist and favor the striking of roots. Do the work early in spring." This, like many other things, looks better to us on paper than in practice. We have had some little experience in this direction, and from results so far, would be more inclined to cut square off with an ax than to "make a sloping cut with a drawing knife."

Keeping Grapes Fresh. The Detroit Tribune speaks of having received fine specimens of Diana grapes raised near St. Joseph, Mich., last season, and kept through the winter in a high state of preservation, and remarks: "The peculiar point of interest attached to the matter is the fact that Mr. Brown 'wintered' seventeen baskets of Dianas by simply placing them in a cool, dry cellar, and covering them with a paper on the top, care being taken that the baskets should not be jostled or disturbed. The grapes kept perfectly, being in their flavor wholly unimpaired. Much difficulty has heretofore been experienced in preserving grapes throughout the winter, and the fact that it has been accomplished by a process so simple and inexpensive will be recognized as of the utmost importance to grape growers generally."

Dwarf Pomegranate.— A Texas correspondent of the Rural New Yorker says of the dwarf pomegranate: "I have been growing it for four years. It bears as large and fine-flavored fruit as the taller-growing varieties, and blooms the entire year here. I think it is as ornamental as any plant I know of. In February, 1871, I planted some seeds of it, and put down some cuttings; in six weeks the cuttings were well rooted, and perfectly-full of flowers. The stems were so tender they bent down, and the flowers rested on the ground. The seedlings commenced blooming in September of the same year, at from one-half to one foot tall, and they continued in bloom until I gave them away in the winter; but they did not ripen any fruit.

Hon. Marshall P. Wilder. — It will be seen from the following that the services of this eminent American pomologist are appreciated no less abroad than at home. The London *Gardener's Chronicle* of a late date prefaces an article upon his public services in the cause of American Pomology, with these remarks:

"We are glad to have the opportunity of laying before our readers the portrait of one of the most distinguished of transatlantic horticulturists, and one who, by his zeal, industry and determination, has not only conferred lasting benefits on his native country, but has, by his careful researches and experiments in hybridization and fruit culture laid the horticulturists of all nations under heavy obligation to him. The name and repute of Marshall P. Wilder are as highly esteemed among the elect fraternity in Great Britain as they are in America."

Pears on Ash and Apple Stocks.—F. R. Elliott states that Robert Manning and J. M. Ives were the first to grow the Pear on the Ash stock in this country. Landon wrote of this working of the Pear on Mountain Ash, and in 1800, thousands of trees had been so grown and fruited. In 1845, I saw and ate of pears at Salem, Massachusetts, grown on Mountain Ash stocks. I took my cue, and propagated thereon. R. Douglas, of Waukegan, had trees of me, for I was then in the nursery trade. Some of his trees have done well, and some varieties that I then worked on Mountain Ash are good at this day, but I do not think the Flemish Beauty or the Bartlett should be varieties counted in as especially suited to the Mountain Ash stock. Many years since, I saw, gathered and ate beautiful Seckels (larger than I ever saw elsewhere) grown on apple roots, but who to-day is ready to advocate the apple root as stock for the Seckel Pear?

Grape Juice Syrup. If three gallons of grape juice will make one gallon of as good syrup for domestic use as is described in the following paragraph, which we quote from *The California Agriculturist*, there are many who would like to know it:

"The grapes should be left on the vines until well ripened and partially dried — about in the condition as when used for port wine. When in that condition, three parts grape juice make one of syrup. The syrup may be used on hot cakes, to sweeten and flavor pies and sauces, for making preserves, apple-butter, and, in fact, it is found greatly superior in flavor and more palatable than cane syrup or sugar for these uses. It is not claimed for it that grape syrup is equal in saccharine value to cane syrup, but its superior flavor is a surprise and delight to all who use it."

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THE POMOLOGIST

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MARK MILLER, Managing Editor and Publisher, Des Moines, Iowa.

Dr. J. Stayman, Associate Editor, Leavenworth, Kansas.
Dr. Wm. M. Howsley, Corresponding Editor, Leavenworth, Kansas.
Dr. S. H. Kridelbaugh, Entomological Editor, Clarinda, Iowa.

PIPPIN. -- Whence is this Word Derived as Applied to the Apple?

By the Corresponding Editor.

At the late meeting of the Kansas State Horticultural Society at Lawrence, the President enquired to know if any gentleman in the house could answer the above question. No gentleman present, save Prof. S. T. Kelsey, made any response. He said he had thought and enquired much upon this subject, and that the only conclusion at which he able to arrive was, that it was derived from and meant Apple; nothing more, had been nothing less. We also have made a good deal of research and have thought much upon word, this and have not been able to arrive at any other conclusion than that offered by our friend Kelsey, that is, that it simply means apple. If the conclusion reached as above is correct the application of it as commonly used to designate a variety of the apple, is, to say the least of it, a great blunder in pomological nomenclature.

Pyrus Malus is the botanical name of a species of the Pyrus *family*, and not a variety. Hence the palpable absurdity of applying the name to any single variety, when it is according to the above conclusion, the name of a species. But it may be said that the conclusion above arrived at is wrong, and consequently the word is derived from something else than the word apple. If this is so, then it is hoped that the objector will favor the public with a correct tracing of this word from its root to its present application. Meanwhile we will state some of the difficulties that have presented themselves to our mind in making any application of it to anything, other than that of the *Apple*. It is, we believe, an admitted point, that all words, however dissimilar they seem, are legitimately the offspring of some root, and like the trunk, the branches, the buds, the leaves, the bark, etc., of a tree, are all inseparably attached to and sustained by a common origin. If this position, then, be true, and we presume few will deny it, we again ask, whence is the word *Pippin*, as applied to the word *Apple*, derived? Will some one who knows (if any such can be found,) favor the public with the answer?

It seems to be indiscriminately applied to apples of various sizes, forms, colors, and times of ripening. Hence, if it is derived from none of these, it must be derived, if it means anything at all, from something else. If, as we believe, no legitimate derivation can be found for this word, it should, in our judgment, be expunged from our fruit books and nursery catalogues as a word calculated to bewilder and mislead. We hope that some one skilled in pomological lore will clear away the fog that surrounds this word, and let us see it in its true meaning.

In connection with this subject there are other names applied to designate varieties of the apple, equally puzzling with the word Pippin. The word Bellflower is one of these. When we come to trace this word and use the Yellow Bellflower as a type, the matter is left in doubt whether the shape or the color of the fruit is the leading idea. The part of the word, Bell, would lead one to suppose that the variety was bell-shaped. The shape

resembles almost anything else as much as a bell — being swollen in the middle and diminishing toward each end, but more toward the blossom than toward the stem, while a bell is uniformly much larger at the lower end, answering to the blossom, than at the upper end, answering to the stem.

The balance of the word, *Flower*, is equally misapplied with that of *Bell*, when the fruit is left to explain. One would be led to suppose that the exterior of the fruit was both bright and beautiful. In this expectation we would be doomed to disappointment to some extent, at least, since the fruit is neither beautiful in shape, nor brilliant or beautiful in color. Whence, then, is the name of this fruit derived? If we will examine a tree in full bloom in the Spring and survey its beautifully *white* bell-shaped flowers, we have a good reason why we should call the fruit Bellflower, or (as the French would spell it), *Belle-fleur*, or beautiful flower.

Coxe, who first describes the Yellow Bellflower, which originated in Burlington, N. J., no doubt gave it this name in consequence of the beautiful flowers of the tree which produced the fruit. There are many other varieties of the apple bearing the name of *Bell-flower*. All of these have no doubt obtained this name because they have either been produced from *seed* of the Yellow Bellflower, or in some way resemble it in shape, flavor, or some other peculiar characteristic, without any reference whatever to the blossoms, from which the original Bellflower legitimately derives its name. Hence, all of these are arbitrary and unnatural, and should be re-named in such way as to lead the mind back to the origin of the variety in question.

Another name which seems to form a class is that of PEARMAIN. This name would seem to indicate that it was in some way derived from a resemblance of the apple thus named to the PEAR. But whether this resemblance is in the shape or the flavor of the Pear, is not so clearly defined. If it is intended to resemble this class of apples to the shape of the pear, then there is but very little to hold us to any one particular point, since this latter fruit is round, oblong, or conical, tapering in the latter case, from the blossom to the stem; while the apple, when conically-shaped, generally tapers from the stem to the blossom. Hence, in this view of the case, there is nothing satisfactory in getting at the derivation of the name. If in the second case it is intended to derive the name PEARMAIN from the resemblance in flavor of the apple so named to that of the *Pear*, it is (if not quite so unsatisfactory as when compared in shape) still left an unsettled point; for althoug the pear has generally a flavor peculiar to itself, yet different varieties differ widely in this respect. In this latter comparison, we may be said to approximate to a conclusion; yet it is one in which nothing is *definitely* concluded.

This matter also wants overhauling, and of being placed upon a basis where we can have some just conception when a fruit is presented under a certain name "of its origin." Does the word PEARMAIN, when applied to the apple mean *pear-shaped* or *pear-flavored?*

Of the same category is the word SPITZENBERG, when applied to a variety of the apple. We have in this class the Esopus, the Newtown, the Pownal, the White Spitzenbers, etc. In the above cited cases the words Esopus, Newtown, Pownal, and White are of easy application; but that of Spitzenberg remains yet to be solved. If this class ot apples derives its name (as is said by some) from a European town called Spitzenberg, then the names before mentioned, being attached to that of Spitzenberg, produces an utter confusion of ideas. Almost every variety of fruit has both an adjective and substantive name, as, for example, Newtown Pippin, Roxbury Russett, Rhode Island Greening, etc. Here one part of the name is adjective, and the other substantive. But in the case of the Spitzenbergs, all save one are substantive — a palpable violation of the English language, in making one substantive qualify another.

There are many novices in pomology like ourselves, who would like to be intelligibly informed upon the foregoing points. We mean upon the correct derivation of the word Pippin, as applied to the Apple; the word Bellflower; the word Pearmain; and the word Spitzenberg. Who among the pomological savants will undertake to clear up these points? The one who shall succeed in making them clear, will lay the fruit-growing public under lasting obligations.

SUPPLEMENT.

Webster says Pippin is derived from pip, a spot on the skin. Shakspeare speaks of eating sour Pippins of last year. In both these cases nothing definite is given in regard to the derivation of the name.

PEAR BLIGHT.--Reply to Gardener's Monthly.

BY THE CORRESPONDING EDITOR.

The editor of the *Gardener's Monthly*, in his issue for March, says: "The corresponding editor of the POMOLOGIST AND GARDENER offers objections to Mr. Meehan's theory that fungi are the cause of fire blight in pear trees." The paragraph here referred to implies that Mr. Meehan claims to be the originator of this fungus theory. We were not aware when our article to which he refers was written, that Mr. Meehan claimed to have originated, or that he ever advocated this—in our judgment—untenable doctrine. In replying to our objections to the fungus theory, the editor of the *Gardener*, says; "In the East, fire blight attacks wood at any age, sometimes as much as ten years old; and that it does attack trees in dry summers." Now these statements of his, if true, are only isolated cases, and cannot be admitted as valid in blight as an epidemic disease. We are not speaking of exceptional cases of this disease, but of its wide-spread and devastating effects over a large extent of country at the same time. It is in this last form that blight becomes such a terror to planters, and it is to this form of the disease, that our remarks upon it are intended to be applied.

Again, the editor of the *Gardener* says: "California and Italy may not have the little paracite there, or the climate may be unfavorable to its development." We hardly think that this reason, if reason it can be called, will be considered as satisfactory. Mr. Meehan would, in our judgment, have made a much better showing of his case if he had said that California and Italy were not visited with those sudden and extreme changes of atmospheric temperature, as are those countries where blight so often and so fatally prevails. But as a *quietus* to all of our objections to the fungus theory, he says: "Our fourth argument is precisely the reason why it should be *fungi*. If the seeds of the paracite are not there, all the circumstances, no matter how favorable to development, would make it sprout." But, says he, "no theory is needed about this matter. Any one who cares to take the trouble may see the fungi operating by the aid of a good glass. That which certainly exists, must surely be possible."

Now why the seed—if these are the means through which the injury is accomplished—should under like circumstances, attach to one tree and not to another of the same kind, is something the fungus theory fails satisfactorily to account for, unless it is claimed that these paracites have discriminating powers, which would be absurd. Now it would seem that sporules or eggs would be as likely to attach to one tree as another of the same kind and under the same circumstances. And yet we find in cases of *epidemic* blight that there is a marked difference. The disease inducing cause, whatever it may be, singles out certain varieties of the same *species* for its work of destruction. Among pear trees, for instance, the *Glout Morceau* almost uniformly suffers most severely. *Vicar of Winkfield* usually suffers next in degree. Now why this should be the case, if fungi and *not* atmospheric changes are the cause, is to our mind passing strange. Other remarkable facts in regard to these paracites are, that they with singular unanimity make their attacks—if at all—at or nearly the same time of the season, singling out as before remarked, the same variety of trees, and over a wide extent of country. Now how these blind, inanimate things, guided by neither *reason* nor instinct, should so uniformly produce the same disease, at the same time, on the same variety of trees, and over so great an extent of country as is generally visited by blight, is to our mind incomprehensible. These are facts which we think our friends of the fungoid school will find hard to explain. Why is it, we would again ask, that nurserymen and tree planters, in the northern parts of Iowa, Minnesota, Illinois and Wisconsin, are so anxious upon the subject of hardy varieties?

Do they dread the *fungi* or the severity of their *winters?* The latter, of course. Soil has to some extent a modifying influence, but not a controlling one.

Now so far as fungi are found to be in portions of the pear trees affected with blight, and therefore claimed to be the cause, we would say, that this is a position assumed, and not proven. It is in our judgment an utter confounding of the whole question in controversy. That the fungi and the disease are sometimes found together, is no evidence, aside from any other, which is the cause and which the effect; or whether both are not the result of some other cause. The latter would seem to be the more reasonable conclusion.

We here take the position that blight in the pear tree is produced by atmospheric influences, and that *fungi* may be produced by the vitiated sap of the blighted tree, when found there. The question at issue is, *not* whether fungi are found in blighted trees, *but* whether the fungi *produce* the blight. Upon the settlement of this point, hinges the whole controversy between the *fungoid* and *anti-fungoid* theories. We have read many articles written by numerous persons upon *Pear Blight*, and while almost all of them differ in many points, there is one point however, upon which there is a singular agreement, and that is that trees with *well ripened wood* are much more exempt from attacks of blight than those with *unripened wood.* And the exemption from or liability to this disease is in exact proportion to the maturity of the wood. If then this position, so universally admitted, be true, another very embarrassing difficulty in the way of the fungus theory presents itself and that is this. Blight of which fungi are said to be the exciting cause, shows itself in full development during the months of *May* and *June*, while the wood is in a state of the most active growth, consequently the ripened wood above referred to must look *back* to the preceding season and not to the present one, for the wood has not yet commenced to ripen. Blight therefore must go back to the season before its development for its cause. If fungi were the cause, the development and the cause would be simultaneous, or as nearly so as cause and effect could well be to each other. If instead of so pertinaciously insisting that fungi are the cause of blight, the advocates of this theory would refer it to atmospheric vicissitudes, their theory would be in keeping with the circumstances surrounding this disease. But up to this time they have neither told us the *why* nor the *how* of their operation. We cannot close our remarks without referring to a paper lately read by President Hoops before the Pennsylvania State Horticultural Society. Although a decided advocate of the fungoid theory of blight, he makes in conclusion the following remarks."

"Whether fungi is (are) the cause of disease, or merely a natural consequence of some disarrangement of the organs of the tree or plant, has long been a much disputed point, many scientific men being arrayed on either side. Of late years, however, the question appears to have been pretty generally settled in favor of the advocates of the former belief. Yet it is an *undeniable fact* that these pests will attack a *feeble* tree or plant in *preference* to one in a healthy condition, after the manner of all paracites, whether animal or vegetable."

This we hold to be a virtual surrender of this whole fungus theory of PEAR BLIGHT. If they, as here admitted, attack a feeble or unhealthy tree or plant in preference to one in a healthy condition, then the disease exists before the attack is made, and of course the fungi are not the *cause.* This is all the opponents of the fungus theory claim. The admission here made very clearly and correctly indicates that the diseased condition of the animal or plant, is the food upon which the paracite feeds and thrives. A few more candid, admissions of this sort from similar sources will put this mooted question to rest. The importance of this question must be our apology for using so much space.

A LADY HORTICULTURIST.—The Merrimack (N. H.) Journal says Mrs. Stephen Kenrick, of Franklin, has the finest variety of pear, plum trees and grape vines to be found in any fruitery in Merrimack county. She does all the grafting and pruning with her own hands, and manages the whole establishment with no interference from outsiders. She has some 25 varieties of the grape, and in these and her pears she has the most superb display in their season.

Essay on the Grape.—Important Considerations in Planting a Vineyard.

Read before the Kansas State Horticultural Society, at Lawrence, December 20th, 1871.

By the Associate Editor.

Mr. President:—As we have been requested to read an essay on the grape before this inteligent body of horticulturists, with your permission and their patience, we shall endeavor to do so; but there has already been so much said and written upon this subject, that we scarcely know what we can add to interest you, not because the subject is exhausted, but from our inability to do it justice. Even if we had the ability, in a short essay like this, we could not fully discuss it. We are well aware that we differ much from some grape-growers, but in the opinion of the multitude we aught to gain knowledge.

The cultivation of the grape is among one of the most ancient arts known to mankind. In every country adapted to its growth, it is coeval with the dawn of civilization. It is a singular fact that it is said the first labor of Noah after the flood, was to plant a vineyard and make wine. (Genesis IX, 20.)

With this great antiquity in the cultivation of the grape amongst the most highly civilized nations, we would be led to infer that there would be nothing left for us to do but to plant their varieties and follow their precepts. But this is not the case, for sad experience has long since proven them a failure, with blasted prospects and disappointed hopes. It has been the misfortune of the American grape-grower of imbibing too deeply in ancient grape theories, which has led to this disappointment. He has not only brought over with him their opinions and methods of cultivation, but also their species (*vitis vinefera*) and varieties, and has endeavored to cultivate them in an uncongenial soil and climate, under conditions which even our native grapes will scarcely succeed.

We have learned by experience, that, although the European grape is healthy in its native home, in Asia, it will not succeed here unless under similar conditions of temperature and moisture. It may appear to some unnecessary for us to say anything upon the European grape and its cultivation. This might appear so if we were purely Americanized; but this is not the case, for all of our hopes and aspirations in the successful cultivation of the grape are based upon the success of the European grape in its native home. Many of us have still a lingering hope that it may yet be acclimated and made to succeed with us. This belief has taken hold of the public mind with such enthusiasm that nearly all the new varieties offered, purport to be hybrids with the foreign grape.

That it is possible to produce a good grape by that means, we do not pretend to deny, but that we can produce a good, healthy, hardy grape, adapted to our climate, we very much doubt. And until the fact can first be shown that the offspring do not inherit the peculiarities of their parents, we must discent from these views. It is strange that what we believe and admit as a well established physiological law in the animal race, we should violate with impunity in the vegetable kingdom, and then hope for satisfactory results. Dr. Hooker, of England, in his "Botany of the Antartic Voyage." says: "That all the individuals of a species have been produced from one parent or pair, and that they retain their *distinctive*, specific *characteristics*. The most satisfactory proof we can adduce of hybridization being powerless as an agent in producing species, however much it may combine them, are the facts that no hybrid has ever afforded a *character foreign to that of its parents*, and that hybrids are generally constitutionally weak."

Having shown that the European grape is not adapted to this variable climate, and neither is there any probability of us producing one by hybridizing our varieties with it, we should therefore turn our attention to our native species, in hope of producing a grape of good quality—healthy and hardy, adapted to our various wants, and worthy of general cultivation. With all of our boasted numbers, we have yet but two which we consider worthy of general cultivation. They are the Concord and Ive's Seedling. It is very true, we have many which are of better quality, as the Iona, Delaware, Alvey and Herbemont, or adapted to special purposes, as the Catawba, Martha, Telegraph,

Norton's Virginia, Cynthiana and Clinton. These varietis, for certain purposes and in certain localities, are almost indispensable, but who, with experience would recommend them for general cultivation in Kansas? It is very different with the Concord and Ive's Seedling. They are not only healthy and hardy, but also very productive, and good for either market or wine, and succeed wherever tried. We have found no other grapes among the numerous varieties we have tested or seen growing, which possess so many good qualities, notwithstanding they are very far from being perfect. The Iona, for quality and for wine, is, perhaps, without a rival; and the Catawba, for sparkling wine, suitable to the American taste, has, perhaps, never been excelled.

We have a long list of hybrids, but so far as tested, we cannot recommend any of them, and if we did, it would only be on trial for certain purposes and in special locations, for the greater the number and the longer we try them the more we are convinced that they have inherited the defects of the foreign grape, and are not adapted to our climate. The most promising and desirable of these are, perhaps, the Wilder, Goethe and Croton.

Experience has taught us a lesson which will save much time, money and disappointment, if we will but follow its precepts, that is, to plant but few varieties, and those only which have proved generally hardy, healthy and productive. Plant them in the very best locations, for very much depends upon soil, aspect and situation of the vineyard.

We have seen the Catwba grape in unfavorable seasons in certain soil, healthy, and ripen its fruit perfectly, while it was an entire failure in other soil in the same neighborhood. This soil was a yellowish, white clay, mixed with sand, shale and disintegrated lime, on a steep, southern slope, intermediate between the high and low land, where the Catawba would not succeed. We have seen the Concord grape ripen fifteen days sooner in one vineyard than in another, not two miles apart. This was no doubt due to five degrees higher daily mean temperature, for the grape, with all other vegetables, requires a specific amount of heat, from growth to maturity, under the same conditions of humidity.

We have also seen the same variety of grapes contain from twenty-five to thirty per cent more saccharine matter in one vineyard, than in another in the same vicinity. This was due to soil, aspect and elevation, which gave a longer season, higher temperature and more mature and perfect growth, which more fully developed the sugar, reduced the acid and improved the grape.

These are some of the most important considerations in planting a vineyard, and no person should overlook them who wishes to be successful and reap the highest reward for his labor, for perfect health, early maturity, and best quality will always give you the pre-eminence. There are also peculiarities of species and varieties, which we should properly understand if we wish to make any proficiency in grape culture, that we may better utilize the locations we have. We have seen the *labrusca* and *cordifolia* species grow luxuriantly, and bear profusely in the most unfavorable seasons, with their roots immersed in water, while the improved varieties, as the Catawba and the Isabella would not succeed on dry ground in the same vicinity. In all of our experience, we have been unable to find any conditions in which they would not succeed under sufficient heat.

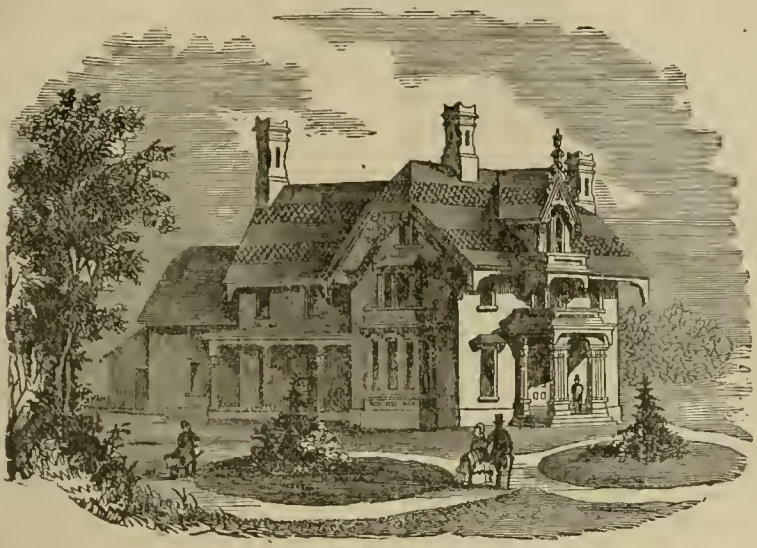
Some varieties of grapes have very limited bounds, and will not succeed within the limits of others, while others are again not so prescribed. Some are limited by temperature, others by humidity, and a few, perhaps, by both. This difference is due to the species from which they have been produced. As the *vitas vinifera* will not endure the humidity of the Atlantic states, neither will the *vulpina* the temperatue of the North, while the *labrusca* and *cordifolia* will endure both; and the home of the *æstivilis* is found to be a dry soil under a hot sun. It is these peculiarities of species, varieties, soil, aspects and elevation, which we have wished to impress upon you, and give as a basis upon which we may hope to establish scientific grape culture. If these remarks on the grape but cause you to think before you act, we hope our labor will not have been in vain.

Last season, Berlin, Wisconsin, shipped 13,670 barrels of cranberries.

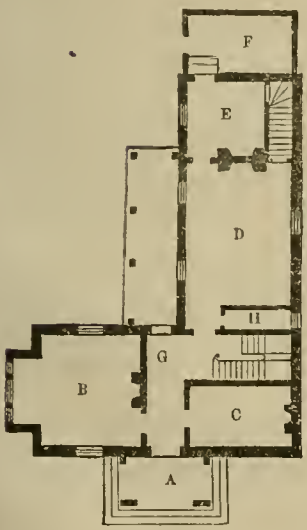
Design for a Residence.

In response to a correspondent for the plan of a dwelling of moderate dimensions and expenditure, and at the same time combining neatness of style and convenience, we submit the following. It is one of many designs from Mr. Sloan, a Philadelphia architect, and of which he says:

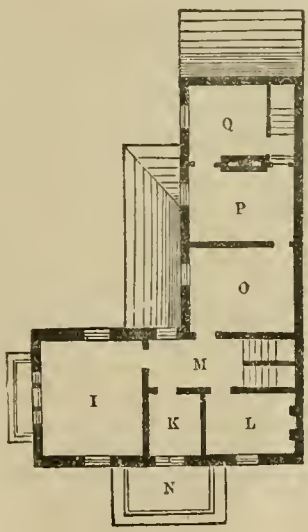
"There is much to admire in it, though very modest in pretension. Its general appear-



A SUBURBAN RESIDENCE.



LOWER FLOOR.



UPPER FLOOR.

ance is inviting; an air of comfort and elegance being thrown into it by the broad, projecting roof, wide verandahs and truncated gables. A quiet retreat, with appropriate surroundings, would show it to the best advantage. It is neither large nor expensive, and

should be constructed of stone, though brick or wood will answer very well, where it is desirable or expedient. The arrangement of rooms, etc., is very convenient. The first story contains four rooms, as seen by reference to plan. A, front porch; B, parlor, 14 by 16 feet; C, library, 9 by 14 feet; D, dining room, 14 by 18 feet; E, kitchen, 10 by 10 feet; with private stairs, and steps to cellar beneath; F, wash-house, 8 by 12 feet; G, hall with main stairs; H, pantry.

The second story contains a large number of rooms; I, chamber, 14 by 16 feet; K, bedroom, 8 by 9 feet; L, chamber, 10 by 12 feet; M, hall; N, balcony; O, chamber, 9 by 14 feet; P, chamber, 9 by 14 feet; Q, chamber, 10 by 10 feet. The attic will contain two rooms, lighted through the large dormer and gable windows. We would direct special attention to this design, for we think there are many places for which it is peculiarly adapted, combining, as it does, pleasing style and a large amount of room with a moderate expenditure.

How to grow Grapes under Glass.

The following paper, showing how to grow grapes under glass, with little trouble or expense, was read before the Ontario, Can., Fruit Growers' Association at their meeting last autumn, by Mr. James Dougall:

Many persons would be induced to erect a small vinery for the culture of the finer varieties of foreign grapes, were it not for the great trouble attending their culture under glass in the ordinary manner, in watering, syringing, ventilating, etc., requiring the services of a professional gardener, or occupying more time and attention than the generality of persons can spare.

By adopting the following plan in erecting the vinery they will be relieved of the greater part of this trouble, and have a fine supply of delicious grapes, with no more trouble or attention than is required to grow the natural vine out of doors.

The sashes are made stationery, but so that they can be unscrewed and taken off for repairs at any time. They extend from the front wall to within a foot or ten inches of the back wall at the top, leaving an opening of ten inches wide along the top to be closed by sheet-iron ventilators in winter or when requisite, but which is kept constantly open from the time the vines are uncovered in the spring till they are laid down and covered in the fall.

The principal peculiarity is in the glazing. The glass is laid end to end without lapping or putty, and merely kept in its place by small pieces of tin, and a space of half an inch is left open between every third or fourth pane, so that all the rain that falls on the house is distributed pretty equally over the entire house, very little running off the roof except in very heavy thunder storms. There is no ventilation whatever below, as a draught I have found injurious to the vines. Any air that comes in is by these openings in the glazing, and the heated air finds vent at the top.

Last year was a very dry one as well as this, we having no rain here for months; but the vines never suffered from the drought, though they were never watered or syringed from the time they were uncovered in spring, when it was done copiously, till again uncovered this spring. Nor were they the least affected either last year or this with mildew or red spider; though previous to adopting this plan I was annually troubled with both, in spite of syringing copiously morning and evening.

My present vinery was not erected for that purpose, but for a small conservatory, and the floor was sunk about two and a half or three feet, with a brick wall all round. About twelve years ago I filled it up level with good compost, and planted the vines all inside, their being no opening for their roots to extend to the border outside. It was intended principally for proving seedling vines of the foreign varieties and the newer varieties then out, with a few of the best old varieties, and in a space of twenty-four by fourteen feet contained for several years thirty-six vines, which were thinned out as they were proven worthless, till it contains twenty-four; this is still too many, about sixteen being all that could be properly grown in that space. Last year it got a liberal supply of liquid

manure in spring; this year it got nothing but clear water at first and rain as it falls, and is doing as well as last year, and vigorous enough for a house containing so many vines.

The ends of my present vinery are not glazed, having only a small window and door on each end. Were I to erect a new one I would have openings in the front wall to allow the roots of the front row of vines to extend into a prepared border outside.

For those who may wish to try this plan, I would recommend the following varieties as being the most successful with me, and of the finest quality:

1. Black Hamburg.
2. Muscat Hamburg.
3. Champion Hamburg.
4. Lady Downes.
5. Golden Hamburg.
6. Bowood Muscat.
7. Buckland Sweet Water.
8. General de la Marmera.

The first four are black or purple grapes, and the last four, white grapes. No. 1 is by far the most profitable and best of the blacks, and Nos. 6 and 7 of the whites. Nos. 4 and 6 are the better of artificial impregnation, as they do not set the fruit very well.

The principal trouble in following this plan, more than is required in out-door culture of the native, is the necessity of thinning the grapes on the bunches to about one-half when about one-quarter grown, to give room to the rest of the berries to swell.

Cutting Back Grape Vines.

A few persons are found in all grape growing districts, and particularly among hot-house grape growers, who practice the cutting-in system — as it is called — with a view of enlarging the size and hastening the maturity of the fruit. The process consists in shortening the wood of the current year — or that producing the fruit — to within a few joints of the outer cluster, and doing it about the time the grapes have attained to two-thirds their full size.

The reason for doing it is based upon the supposition, that the sap that would pass into and nourish the growing shoot beyond the cluster, is all retained and kept back, the better to nourish and feed the grapes. This is simply a mistake, an error in judgment, in not understanding the true theory of the movement of sap in vegetable growth.

If any advantage is gained in cutting off all beyond four or five joints, why not cut them off directly at the last bunch, and thus let all the sap stop there and go directly into the cluster? and yet we know from trial this will no do; for the grapes will increase no more in size, and if they mature at all, they will be sickly specimens of fruit.

ELABORATION OF JUICES.

The juices or sap as it ascends or passes through the pores of the wood, is more and more elaborated and fitted to become the true and necessary food of the ripening clusters, which have the power and do elect from the sap so conveyed, that part only, which is fitted for its uses.

Now instead of trying to force all the ascending sap into the clusters, which, while it would to some extent nourish them, would also poisen them, for all the sap is not the proper food for the fruit,— the effort should be to cause all the juice possible to pass the point of union of the cluster with the vine, thus bringing the largest possible amount of fruit food within the reach of the cluster. How to effect this:

It can be done in no other way than by permitting the growing shoots beyond the cluster to make all the growth they can, and instead of weakening the clusters it will add greatly to their size and perfection in every respect. Every healthy leaf should be left on — for the leaves are the lungs of the plant — and clipping of all or any part of those immediately around or near the fruit is injurious always. Strip one of those leading shoots of its leaves to the terminal buds and it will perish; and in proportion as a lesser quantity is removed, in the same degree is the injury produced.— *Pacific Rural Press.*

One firm at Quincy, Illinois, is prepared to contract for 20,000 bushels of tomatoes, and 150 acres of cucumbers, to be delivered this year, which quantity they intend to pickle.

Fruit Prospects.--Conditional Influences of Fruitfulness.

By Dr. James Weed, Muscatine, Iowa,

Ed. Pomologist and Gardener: Apples promise a fair, perhaps a large crop. Some complaint is made of their falling off, and with some kinds and upon some trees this premature dropping is too general. The bloom was very profuse, and fewer trees were wholly destitute of flowers than I recollect ever before to have seen. Pears also were very full, but the young fruit in many cases has fallen pretty generally. Early Richmond and Morello cherries were badly damaged in winter, the temperature having on three several occasions fallen to ten or twelve degrees below zero, which killed many of the fruit buds, and those which passed the winter apparently unharmed and which were sufficiently numerous to have given a fair crop, have many of them failed, and cherries are more nearly a failure than for many years past.

Peaches and apricots showed an occasional flower, and cultivated plums had many that survived the winter's cold, and these adhere well to the trees and would mature but for the curculio—every apricot and plum having already from one to half a dozen eggs deposited for its destruction. Wild plums, the fruit buds of which we believe are never killed by the cold of winter, have dropped their fruit as badly as the cherries, and we had no frost after the trees came into bloom.

Now what are the causes of the partial failure of the wild plums, the hardy cherries, and of some pears and apples, it is difficult to tell. We are confident the fruit buds of the apple, pear and wild plum were not injured by cold in winter, and no spring frost occuring, the causes were probably in some unfavorable conditions for fertilization, during infloresence. We have a variety of the Red Morello cherry that lost none of its fruit buds in winter, and consequently was full of bloom, but blooming later than the Early Richmond and others, the flowers were just fully open when a heavy rain occurred, lasting only six hours, out which we believe washed away the pollen to such an extent as to prevent proper fertilization. This cherry and the Raule's Jannette apple, which was in bloom at the same time, were severely thinned in their crops from some cause, and we are able to assign no more probable one than the occurrence of this rain.

Continued cool weather during the period of infloresence, though no actual frost occurs, appears to interrupt fertilization in the wild plum and in cherries, or in some other way to cause the fruit to fall prematurely. Some varieties of the apple are disposed to cast off the young fruit in this manner from slight causes, while others are characterized by great persistency, even holding their fruit against high winds up to full maturity. The conditions which influence fruitfulness in trees are so many and so varied, such as the previous culture, the previous season and their peculiar relationship to the emergencies of the present, extremes of heat and cold, of drouth and excessive moisture that with the closest observation, one is often involved in such a complexity of considerations as to debar an opinion, but occasionally a cause and effect are so clearly traceable that we establish a fact, which in its connection with our previous acquirements, may lead us to a better knowledge of future obstacles, and thus advance the enobling cause of Horticulture.

Extracting the Juice From Grapes.—Centrifugal force instead of pressure, is now being used in France to extract the juice from grapes for the manufacture of wine. The idea has been long in application in this country in laundries, for drying clothes and in sugar refineries. It is said to give entire satisfaction when applied to expressing the juice from grapes or apples, and some of our viniculturists will doubtless do well to try it in California. The machine is represented as acting more rapidly than the ordinary press, and extracts more juice. Thus, with grapes the machine will in two hours, do more work than the press in seventeen, and the juice is all of the same quality, while by the old process only the first running will make wine of the best quality, as the remainder is injured by the contacs with the skins and stalks. The same results are obtained in extracting the juice from apples. The motive power necessary to drive the apparatus, it is reported, is not large, as a three-horse engine will give a thousand turns a minute to an ordinary sized machine.—*San Francisco Morning Call.*

Fig Culture.

A Smyrna letter writer gives an interesting account of the culture of figs, and the preparation for market. After ripening on the trees, they are cured or dried in the sun, and then placed in coarse camel's-hair bags, and brought by caravans of from six to twelve camels. Arived at the bazar the camels are made to kneel down and the driver awaits a purchaser. This is one of the most singular and interesting sights to the traveller. The camels are kneeling on every side, and their huge jaws moving from side to side, the uncouth humps made still more so by the pack piled upon them, and their great callous feet and knees folded under them. But the drivers are of a still uglier and more indescribable expression, and their ill-fitting costume adds to the effect. Thin, hollow cheeks and sunken, leering eyes, a sharp, almost hooked nose, an immense mouth, whose black teeth are partially concealed by a few straggling yellow hairs of a moustache, and a scanty beard covers the chin, and a fierce wildness of expression of the whole countenance, which makes one feel that he would not like to meet the fellow alone on a dark night. Coarse does not express the texture of their garments. Gunny bags seem fine, almost, in comparison with some of them, but they all have some piece of bright color tied on somewhere. Some of them talk earnestly together, as much with their arms and features as with their tongues. All are smoking the inevitable cigarette, which is taking the place of the naghili—the latter is more used at cafes and in shops. From this bazar the figs are taken to the fig-packing establishment, which is a long, hall-like building, open overhead, with awnings stretched part way across to shelter the "pickers," who are ranged along the side of the building, from the intense heat of the sun. These fig pickers are generally half blind, toothless, dirty old women; some few children or other semi-useless members of society. At any rate, "dirty" applies to them all, and one dosen't like to think of them when he is eating a delicate *deme.* A pile of soft, new figs are placed beside each one, and every fig is taken separately and pulled into shape; the fingers are moistened occasionally with salt water. The nicest and largest are put by themselves, the rest are thrown into a shallow basket with a rim about two inches high. These are then taken to the packers. The poorer figs are packed in drums and baskets; the best quality are layer figs, and are packed in square, wooden boxes, in bags or cartoons. There is a quality called washed figs, but the name is a misnomer, as the figs are never washed in no sense of the word.

The choicest of the figs are generally taken to London, though of late years some have been sent to America. In packing the drums, a handful of the pulled figs are taken and arranged with the stems all one way, and then crowded into the drum, filling the outer row first. A layer of the better figs are placed on top, and a few laurel leaves laid in, and then it is taken away, the cover nailed on, and the box tied up and piled away to await transportation; there is no pressing except what takes place in the store room, where they are piled eight or ten feet high, and are necessarily pressed by their own weight. In two or three weeks afterward, the fig worm comes out—one out of every fig. A little white creature, who leaves his web behind him everywhere he goes, and he goes everywhere; into every crevice of wood work or metal, and into every fold of paper and clothing. The open end of every one of a bunch of keys has its web of fig worm silk; between sheets of note paper, and inside the covers of books. On shipboard, the correspondent says he found him in the maintop, and says he would have found him at the truck, had he looked. So many are there from a cargo of figs that the web can be pulled off in long strips from the moulding around the cabin. Delightful sensation to wake up in the night with two or three crawling, cold worms over one's face. "Be careful not to sleep with your mouth open," was a caution given every night on retiring. The large figs are packed more carefully, each one being pressed out into shape before being placed in the box; after one layer is packed the box is turned "end for end" and so on until the box is full; at the top a few laurel leaves are laid in, and the cover nailed on. The sugaring process takes place after the figs come into cold weather. A few frosty days and nights is sufficient to sugar them finely. No sugar is used in packing them. The choicest figs are of medium size, and have very thin, transparent skin to the very end of the fig.

Preserving Samples of Fruits for Exhibition.

By S. J. Parker, M. D. Ithica, N. Y.

Ed. Pomologist and Gardener:—My early experiments with carbolicm, (commonly called carbolic acid) led me to hope that it would be just the thing to preserve samples of fruits for the use of lecturers on fruits and trees, and especially for exhibition by collegiate and agricultural societies for identification. In this I am somewhat disappointed. The adjustment of the carbolic solution to the water and the alcohol used to prevent freezing, requires a little skill, easily obtained, and the fruits are preserved aboslutely form decay, and when in the solution in glass jars appear well. Two defects appear however, 1st, the fruits swell somewhat, and this in berries, renders as for example, Red Antwerp and the Philadelphia Raspberry are nearly alike in size, though the Red Antwerp is a third larger than the Philadelphia. 2nd, carboline in all its forms has a great love for colors and hence it takes the color out of fruits. This is its greatest fault as a preservative. Yet it is better than most preservatives notwithstanding the evils I have just named.

From some experiments recently made by me, I suggest the trials of two other preservative fluids. The first is made by adding perfectly white sugar to water at 190 degrees of F. thermometer, or 88 degrees C. until it is as thick as honey. Put the fruit sample in a suitable glass vessel cold, and pour this sugar water at 150 to 190 degrees F. over the sample so as to cover it. Thus you have the strawberry or apple in a strong transparent solution of sugar.

The second is to add carboline in a small quantity to the above, sufficient to keep off mildew or mould and yet not discolor the fruit. So also may be named the following: Saturate 95 per cent alcohol with pure white sugar and add a little carbolic acid. Add of this a little of the white sugar hot solution named above—say a tablespoonful to every six ounces of hot sugar solution named.

Such is my reply to the dozen letters I have asking, "how can I preserve samples of fruits for exhibitions?" Models of fruits are easily made in plaster of paris. You coat one half of an apple, pear or peach half an inch thick with the plaster of paris, leaving a flat edge outwards on the dividing line. Let it harden, then you oil or grease this dividing edge and coat the remainder of the fruit half of an inch thick, let this harden; the apple, pear or peach is now enveloped by plaster of paris on all sides in a two parted case. Separate them and you have a mould of the fruit. Now oil the inside of the mould which was next the fruit, or varnish it. Fill one half of the mould with thin plaster of paris (mixed with water) as thick as molasses. Shut the halves of the mould and turn over and over in all directions; the thin plaster of paris will harden in the mould and on opening the mould come out the exact shape of the apple, pear or peach moulded. Now take it and smooth it and put in a stem. To paint it, use one part starch in water, one part boiled linseed oil mixed. In this mix your colors and paint the color of the specimens on the outside of the plaster of paris model thus made. Many dip the models in thin starch water and boiled oil and dry them before painting. They are the best artificial specimens that are made for lecturers and exhibitions, but not as perfect as the actual fruit.

Stakes for Flowers and Shrubs. A correspondent informs the *Technologist* that he has now in his possession stakes for flowers and shrubs which have been in constant use for over nine years, and their points are yet perfectly sound. "I take," he says, "common coal tar and bring it to the boiling point in a kettle some ten to twelve inches deep; I then place the lower part of the stake in the boiling tar, immersing it as deeply as the pot will allow. After remaining therein about ten minutes I take them out, allowing the surplus tar to drain off, and roll the tarred portion in clean, sharp sand, covering every part of the tar. After they have become perfectly dry I give them another coat of tar, completely covering the sanded part." He keeps the upper parts well painted.

A Pennsylvania farmer planted one acre in pumpkins, from which he harvested about forty tons; from these 200 quarts of seed were saved, which brought him fifty dollars in cash.

Pear on Mountain Ash Roots.

By D. B. Wier, Lacon, Ill.

Ed. Pomologist and Gardener:—Mr. Mathews, in the March number of the *Pomologist*, makes out a pretty good case against top-grafting the pear on the Mountain Ash. This in the way the gentleman puts it, reflects a little severely on myself for recommending it so highly as a *root* for the Pear in the February number. But in looking over that article I find I did not write exactly what I intended to do. I had intended only to recommend grafting the Pear on sizeable *lateral* roots of the Mountain Ash. I do not, nor cannot, recommend working it in any other way on this root. I have not tried top-grafting, therefore know nothing about it, have tried budding on seedlings and find that some varieties grow finely and make splendid trees, others grow well the first season and die the next, other varieties refuse to grow at all. But when root grafted on lateral roots and even very short pieces of roots, all kinds so far as tried, grow as well as the best apple root-grafts, and make a large growth the first season, *and if we so wish it, the trees are all on pear roots at three years of age*, by the scion throwing out roots of its own, and what better root can we have for a standard Pear tree than *its own natural roots?* But I still insist that the Mountain Ash root is a better bottom for the Pear than any Pear root on some soils, and especially for the extreme North. Because a species will not succeed when grafted on to the *wood* of another species, is no good reason that it will not succeed perfectly when worked on the *root* of that species. The whole Chickasaw family of Plums succeed admirably when root-grafted on to the lateral roots of young Peach trees, yet they cannot be stock-grafted or top-grafted on to peach trees with any success, and are comparatively worthless when budded. The hard-wood shrub the tree pæonia is grafted successfully on to the *tubers* of the herbaceous pæonias, &c., &c.,

Mr. Mathews has certainly got the names of his Mountain Ashes sadly mixed. He says, "I cannot understand Mr. Wier, when he says that the American Mountain Ash is a much slower growin tree than the European variety." Bryant in his *Forest Trees*, says, "*P. Americana*, the American Mountain Ash greatly resembles the European and is by some considered a variety, but never becomes so *large a tree*." He says also, "the European grows to a height of thirty feet." Fuller says, "the American rarely exceeds fifteen feet in height," and so they grow with me. If Iowa has created a revolution in the growth of the Mountain Ashes, who is the joke on, Mr. Mathews, Iowa, the Ashes or your humble servant?

A Russian Apple.

By Robert Manning, Salem, Mass.

Ed. Pomologist and Gardener:—Some years ago we had in the Pomological Garden, an apple, believed to be of Russian origin, under the name of *Muscovia Naliva*. It was received by my father from Messrs Banmann of Bolwiller, France, in 1836 in the importation which included the first Rostiezer pear tree ever brought into this country, under the name of *Passarts Muscovia Naliva*, but the nearest approach to this name in their catalogue at that time, is *Passarts Moscaner Malvasier apfel*. It was of large size and pale green color with whitish clouds, somewhat resembling in appearance the Old English Codlin, but coarser and inferior in quality, being quite acid and only fit for cooking. It ripened in autumn. The tree was of strong upright growth with very dark wood. The variety is now lost from here.

The name *Naliva* in its various forms appears to signify *juicy* or *melting*. Thus we have in the catalogue of apple trees imported from Russia in 1870 by the United States Department of Agriculture, *Naleiv Woskowoi*, translated Waxen, Juicy; *Polosatoe, Naliwnoe*, or Juicy Streaked; *Scholtinaliw*, or Yellow Juice; *Lapouchoe Nalvia*, or Juicy Burr apple; and *Krimskoo Naliwnoe*, or Juicy Krimtarter. In an interesting article on Russian apples, in Hearth and Home for December 31, 1870, by "W. C. F." is an extract from Rees' Encyclopædia, from which we quote. "About Moscow and many of the adjacent Governments, are produced many excellent sorts of apples, particularly a transparent kind brought originally from China, full of juice, and extremely well tasted, called *Nalivrie* (fill, melting), as in fact, it is so full of juice as to be ready to burst. Perhaps our *Muscovia Nalvia* is identical with this, or with one of those in the catalogue of the Department of Agriculture.

Fruit in Nebraska--Effects of the Last Winter.

By Robt. W. Furnas, Brownsville, Neb.

Ed. Pomologist and Gardener: I have often, this Spring thought of dropping you a line as to our fruit prospects this year, but as our spring has been so backward, every minute almost, has been otherwise employed. The past winter was a remarkably hard one here, as almost everywhere else in the west, and as stated the spring more backward than for the past sixteen years. Many trees and vines suffered severely last winter, in fact were killed out-right. In my own orchard, I have noted results closely. One Peach orchard of near three thousand native seedling trees, only six trees are injured or killed. In another of one thousand trees, budded varieties from New Jersey, only three trees were killed. Another of two thousand trees obtained from Pennsylvania, over three hundred trees are killed. The Seedlings were five years old, the budded varieties four years old. The Warfield and St. Lawrence apple trees three years old in nursery rows were badly damaged. Catawba and Isabella grape vines, four years old, without protection were killed to the ground. The same with Rogers 15 and 19, and Salem, and Walter. The Iona and Israella were somewhat touched but not badly. Other Rogers, Eumelan, Martha, Croton, Senasgua were killed outright. Young Pear trees were injured badly this spring after the tender leaves had put out, by south winds, which by-the-way are more destructive with us than "north-westers."

Notwithstanding the hard winter our fruit prospects were never more glorious. Apples, Pears, Peaches, Plums, Apricots and Grapes in greatest abundance.

Our State Horticultural Society will hold its exhibition in connection with the State Fair at Lincoln, September 3d, 4th, 5th and 6th, and we intend to have one of the finest fruit shows ever held in the west. Our Legislature having made liberal provisions in behalf of both the Horticultural Society and State Board of Agriculture, we will be on hand at other State Horticultural and Pomological gatherings.

What has become of the Western American Pomological talked of Organization? Can't we have a fruit exhibition of that character this fall? Let us have a conference of Missouri, Iowa, Kansas and Nebraska Societies in relation to the enterprise.

Keeping Qualities of Concord Wine.—George Husman, in the Rural World of March 23d, says of some Concord wine made in 1865 and bottled in 1866: "All the bottles which had been well corked were in splendid condition. The wine had lost the offensive foxiness of the Concord, and also much of its color, being of a brilliant red color, when bottled, which had now changed to a brownish yellow, very bright and clear, and had acquired a decided Maderia flavor. It was very smooth, agreeable and mellow, and was pronounced excellent light wine by four gentlemen, besides ourselves, who tried it."

Preservation of Raspberries Without Heat.—It is said that these berries can be preserved with all their native freshness for ice creams or cakes, or for tarts without boiling. They should be picked when the fruit is dry and put at once into a deep bowl or pan, and bruise gently. Mix with an equal weight of best "sifted" sugar, and put immediately into wide necked bottles; cork these firmly without delay and tie bladders over the tops. Keep in a cool place or the fruit will ferment. This mixture should be stirred softly, and only just sufficient to blend the sugar and the fruit. The bottles must be perfectly dry, and the bladders after having been cleaned in the usual way and allowed to become nearly dry, should be moistened with a little whisky or alcohol on the side next the cork.

New Wine Grapes.—Frederick Muench, the veteran Missouri wine grower, in the Rural World, of March 23d, says: "The wine of the Cynthiana surpasses that of the Norton in delicacy; that of the Neosho comes nearer to the genuine Maderia than any I know of. This vine quite lately taken out of the primitive forests near Neosho, in Southwest Missouri, by Mr. Jaeger, and first grafted by me, is one of the hardiest and at the same time most productive of all we have; superlatively promising, yet one of the latest in maturing its fruit, which is just what I want for a wine grape. It belongs to the *æstivalis* class, but is strictly distinguished from the Norton and Cynthiana."

Wine Cellars.

As this is the season, says the *Rural World*, in which preparations for the management of the future vintage must be undertaken, one of the first and most important items is a good cellar. On this important subject we copy from the advance sheets of a most valuable work, entitled Rational Manufactnre of American Wine, which gives more information on the subject of wine making than any work we have yet seen.

All manipulations of this class are to be performed in the cellar, during the storage of wine. They consist in: 1. Filling up; 2. Racking; 3. Clearing or fining. 4. Preparing of ready or ripe wine for the market, in casks or bottles.

We have to proffer a few remarks about the cellar before we discuss the different manipulations.

1. There must be equal temperature in the cellar, if possible, at all times, *i. e.*, 50 to 60 degrees Fah. for young wine, while a lower temperature should prevail for older grades. The cellar shonld be twelve or fourteen feet below the surface of the ground, with air holes fronting north and east, and arched ceiling tightly covered with two feet gronnd.

2. The cellar should be located under the pressing and fermenting room, and should be connected with it by means of of double trap-doors and air-channels. First, for easy and speedy communication. Second, for easy discharge of wine or must by means of hose. An elevator is preferable to stairs.

3. The cellar should be constrncted of good masonry and its floors of clean dry soil. Wooden flooring will do very well, when properly drained to prevent the wood from decaying.

4. The cellar should be kept dry, and a sink hole or sewer should prevent the collection of water therein.

5. The cellar should always be kept clean and free from dust, spider webs, etc., and should be whitewashed by applying only lime.

The following is a very well adapted construction:

1. The floor of the lower cellar to be eighteen feet below the surface, arched ceiling with trap-doors and elevator; channels for air circulation with valves.

2. The floor of the upper cellar to be eight feet below surface, with common ceiling (of joists) trap-doors and elevators, corresponding with those of the lower cellars. Height of cellars to be nine feet, with stove therein, to prodnce a most equitable temperatnre.

3. The floor of the press room is conseqnently one and a half to two feet above the ground, and might be constrncted of wood or other material.

The pressing and the first fermentation take place in this room; the wine remains in the lower story dnring the process of still fermentation and also young wine, while the old wine remains in the lowest cellar, etc. The dimensions are according to the requirements.

California Pears in Europe.

C. W. Reed, of Yolo county, last fall, as a matter of experiment, shipped several boxes of Easter Beurre pears to different points in England. Some to Glasgow and some to Liverpool. The pears were shipped late in the season and were in the snow blookade on the railroad from three to four weeks. Some went by the way of Boston, and some by the way of New York.

He has lately received an account of the experiment. The pears sent by New York arrived in perfect order and condition; while those sent by Boston had apparently been touched by the frost and were in rather poor condition.

On the whole, the experiment is regarded by Mr. Reed as a perfect success, and proves that California pears can be laid down in any one of the above named cities in a good merchantable condition. It also satisfies Mr. Reed that pecuniarily the business will pay.

In confirmation of the above, B. S. Fox, of San Jose, sent some pears to Ireland, his old home, and although it was a small shipment to friends, it proves that the fruit can be shipped and arrive in good condition. These experiments are of great value to our State. We have already a large market in the Atlantic States for our frnits, and particularly for pears, but if we can supply England with her millions of people, with our delicious pears at remunerative prices, we have a market literally beyond our ability to supply. Our fruit growers will make a note of the above facts.— *Pacific Rural Press.*

Kansas State Horticultural Society.

Second Semi-Annual Meeting at Humboldt, Kansas, June 11th and 12th, 1872.

By the Associate Editor.

The meeting opened at nine o'clock A. M., in Long's Hall which was most beautifully decorated with wild and cultivated flowers; the walls were hung with elegant engravings and costly paintings, while the centre of the hall was filled with ornamental and green-house plants, surrounded with a table on which was displayed various kinds of ripe, green and canned fruits and garden vegetables handsomely arranged with bouquets and flowers, showing much taste and skill, giving great credit to the ladies and gentlemen of Humboldt. But above all which spoke louder than a thousand tongues the feeling and sentiment of the people of Humboldt, were the inscriptions in large gilt letters placed over the rostrum "Welcome." "Let Brotherly Love Continue," encircled and intertwined with garlands of native forest leaves and prairie flowers. The meeting was called to order by the President, Dr. W. M. Howsley, of Leavenworth; Prayer by Rev. D. M. Gage, of Iola; Welcoming address by D. B. Emmert, Mayor of the city of Humboldt; responded to by the President.

Prof. E. Gale, of the Kansas Agricultural College at Manhattan, then read an essay on the importance of forest tree culture, which was excellent and well received. He considered the life of a nation depended upon a liberal supply of timber. In support of which he cited the degeneracy of many nations and countries once flourishing but since the destruction of their timber, weak and feeble and the country barren. He prophesied the same fatal results here if the present destruction of trees continued, without renewal. Forest conservation and forest culture should go together. In the mountains the forests should be preserved as they are the source of our great streams. They are now recklessly stripped of their timber by the ax and fire without being replaced by a young growth which is a source of alarm to us of the plains. Forests should be planted and cultivated on the prairies of the west and the natural groves of the valleys and mountains preserved from cattle and fire. But immediate and home results should be also borne in mind in this great work; the breaking of the force of winds, the hiding of unsightly views, the regulating and ameliorating of the climate, etc. The present destruction of the mountain forests and the ruinous system of agriculture on the prairies will, if not remedied, soon beggar this country. Educate the public mind on this matter to effect government aid, and in this the press and every friend of horticulture has a duty to perform. Intelligent forest culture is simple and not expensive but profitable. Experiments with imported varieties are not necessary; indigenous trees are easily obtained and cheap; their entire care will not exceed that of one crop of corn; a few acres of forest will effect a sale of a farm, enhancing its value very much and in a few years secure profitable returns in firewood and timber; the forests constitute a shelter for crops and cattle; also a protection for human life from the terrible winds of the plains in winter.

FOREST TREE CULTURE.

Messrs. Elliott, Gale and Kingsberry were appointed a committee to report resolutions on forest tree culture. The committee reported the following resolutions, which were adopted.

Resolved 1. That the rapid increase of population in the United States and the multiplication of industries all require an immense consumption of timber, foretell the exhaustion of the forests, within a comparatively brief period.

2. That the State of Kansas having only about five per cent of her area in woods, and exposed in her extended surface to the sweeping winds of elevated plains, has a peculiar interest in the subject of forest tree culture, in groves and wind-breaks, and not only for the supply of fuel and timber, but also for the amelioration of climate.

3. That our Senators and Representatives in the Congress of the United States, be respectfully requested to bring before their bodies the importance of some appropriate action to encourage the growth of forest trees on the western plains.

4. That we respectfully call the attention of the farmers of Kansas to the fact that the

deciduous trees native to the State are not only of species valuable on the farm and in arts, but are of easy propagation by seeds and cuttings, and we recommend that their seeds be gathered and cuttings made and planted as the cheapest mode by which large tracts can be set in timber.

5. That in order to extend the planting of coniferous and evergreen trees in shelter belts and in forests for the production of timber, we recommend that action be taken by the Legislature of Kansas to provide special encouragement by premiums, by exemption from taxation, or by the establishment of State nurseries for free distribution of such trees to farmers desiring to plant the same.

WHY DID THE APPLES DROP?

Why did the apples drop so much this season, was next taken up and very thoroughly discussed. It was observed that the leaves hung on the trees late in the winter, which was not usual in this country, which called forth some discussion at our winter meeting. This state of the leaves extended over Kansas and parts of Missouri, but as far as it did exist the fruit has dropped badly. In the meantime it was shown that the wood was not mature, else the leaves would have dropped. This immaturity of the growth caused immature fruit buds, which though they had sufficient vitality to bloom and set fruit, had not enough to hold it on, upon the principle of young trees coming into bearing for the first time, they bloom and set fruit but it drops; the buds having not been fully matured. The same state of things often takes place under high cultivation and excessive pruning.

CULTURE AND PRUNING THE GRAPE.

The cultivation and pruning of the grape was next under discussion. Dr. Stayman being called forth, gave his system of low trilles of two wires and horizontal renewal training by lateral canes and pinching each time to one leaf. This system he considered not only the cheapest but the most simple and much the best, which is shown by the fruit. The main feature being the lateral single cane which is produced by pinching back the renewal canes to but a few buds, and starting a new cane therefrom, which is a lateral, but four of those being necessary in a full bearing vine. They being trained on the two wires, and the bearing shoots hanging down on either side. High, dry, shady, sub-soil clay land considered the best, with a south exposure, and the Concord and Ives' Seedlings being the only grapes so far adapted to general cultivation.

LOCATION OF ORCHARDS.

The location of orchards being next in order, was very thoroughly discussed, resulting in favor of the highest land. Mr. Bishop stated that he had a high hill which has not failed him since 1856 with even the most tender peaches, and pears have uniformly bore good crops and never blighted in the least, while on the low land the fruit was often a failure.

Dr. Stayman, who has both a high and low orchard, stated that he planted on the low land in 1860 and on the high in 1867 and 1868, about the same number of trees and the same varieties, yet he never raised one good crop on the low land, while he has raised three good crops on the high, the last year's crop being over one hundred dollars per acre. The same difference exists this season in favor of the high orchard, yet planted seven and eight years later. But to have the full benefit of high land there should be deep valleys or ravines in close proximity. The committee on flowers and fruit in the hall being ready, reported the following:

REPORT OF COMMITTEE ON FLOWERS AND FRUITS.

We have examined the articles on exhibition and find a good collection of pot-plants, comprising over fifty varieties, which from their growing condition and fine blooms, show good culture and careful attention. We also find a large number of bouquets, (in which the wild flowers of the prairies have been freely used,) most tastefully arranged, showing a love for the beautiful that would do credit to any community. These with the general decorations and arrangements, fine engravings on the walls and nicely arranged hanging

baskets and cages of birds whose songs give an enlivening influence to all, does credit to the ladies and gentlemen of this young and growing city of Humboldt. In fruit we find good specimens of cherries, raspberries currants and gooseberries—also quite a number of apples, peaches and nectarines, (on small limbs cut from trees,) indicating by their smooth and healthy appearance an abundant crop of nice fruit in this vicinity. We would not overlook the fine collection of vegetables on exhibition, prominent among which are the very fine specimens of Irish potatoes. We would call the particular attention of the society to some jars of peaches, being a seedling exhibibited by E. Stroznider, their very large size and fine appearance indicate a valuable addition to our list of fine fruits. In conclusion we would speak of some splendid specimens of late keeping apples on exhibition by Dr. J. Stayman, viz: Ben Davis, Newtown, Pippin, Lawver, Ella Park, Willow Ting, Limbertwig, Gilpin and Abraham, all in prime condition except the last two.

TALK ABOUT FRUITS.

The strawberry being taken up and discussed resulted in the Wilson being the best for general cultivation. But this season all varieties and manner of cultivation proved almost a failure. The plants in very many instances killed, whether covered or not, and those which were not, did not bloom.

The discussion of the raspberry resulted in favor of the Miami or Mammoth cluster, some few added the Doolittle, but the black caps were the only kind that would stand.

The Kittatinny blackberry the only one hardy, all others winter-killed and worthless.

The Houghton gooseberry much the best of any tasted here and very productive.

The currant would not succeed unless heavily mulched or partially shaded from the hot sun.

The pear blight was thoroughly discussed but as usual resulted in *general gas*, each individual having his own theory. The Flemish Beauty, Bartlett and the Beurre Clairgeau were considered the best pears for profit and general cultivation. The following resolutions were offered by Mr. Brackett and adopted:

Resolved, That the thanks of this Society are hereby tendered to the Kansas Pacific, the L. L. & G. and the M., K. & T. Railroad Companies for reduction of fare to members attending the meeting of this Society.

Resolved, That the thanks of this Society are due and are hereby tendered to the citizens of Humboldt for the generous manner in which they have extended their hospitality during our session, and to the ladies of Humboldt our grateful thanks are especially tendered for the tasteful and appropriate manner in which they have decorated the hall for our deliberation.

Dr. J. Stayman then offered the following resolution which was adopted:

Resolved, That this Society appoint three delegates to collect and exhibit Kansas fruits next fall at the meeting of the Pennsylvania Horticultural Society at Philadelphia.

Dr. W. M. Howsley, Dr. J. Stayman and Hon. J. C. Vincent were appointed the committee to exhibit the fruit at Philadelphia. The Society then adjourned to meet in their regular annual session at Topeka, the second Tuesday of December next.

Report on the Wild Goose Plum.

By J. S. Downer, Kentucky.

We copy the following report on the Wild Goose Plum from the Transactions of the Thirteenth Biennial Term of the American Pomological Society. There has been much written concerning the origin and merits of this plum. We probably have in this report from Mr. Downer, a correct account of it:

"As this fruit is now attracting considerable attention in various parts of the country, and, as I first introduced it into Kentucky, and also several of the adjacent States, it will, perhaps, not be improper, that I should state what I may know relative to its origin, history, qualities, etc.

It was first brought to my notice by the late Mr. James Harvey, of Columbia, Tenn. about the year 1850. In a letter to me, at that time, he gave me an account, as then

understood; of the origin of this plum; praised it in very high terms for its fine qualities, hardiness, etc., and kindly sent me buds, as, he stated, taken from the original tree, which was standing in the vicinity of Columbia, Tenn. There were no conflicting statements at that time, as to the place or manner of the origin of this fruit. All these have arisen since. The account given me by Mr. Harvey, in a letter written about that time, was as follows, to-wit: That some years previous to that time, (1850,) a gentleman shot a wild goose in that neighborhood, and on the very spot it was thrown down and left to decompose, the next spring came up the plant now known as the Wild Goose plum; and that it was confidently believed, in that neighborhood, that the seed from which this plum tree sprang, was in the craw of the goose when killed, and this gave rise to its name.

The tree flourishes well when worked on the peach; comes early into bearing, and yields abundant crops of fruit every year. The fruit is large and handsome, of a pinkish red color, covered with a thin, delicate bloom. The flavor, though to an educated taste, not quite equal to some of the popular varieties, is, notwithstanding, very good. It is not, strictly speaking, proof against the attacks of the curculio, but the sting of any insect seems to have little or no effect on it, and, planted by the side of any of the ordinary cultivated sorts, the Wild Goose plum will produce full crops, while they will not ripen a a single specimen.

This plum has a small stock, and so soon as the fruit begins to ripen readily parts from it, which makes it necessary to gather the fruit before fully ripe. This seeming defect, however, is fully compensated for, by its ripening equally well when taken from the tree at this stage, as at any other. Indeed, I regard this characteristic as increasing its value. It enables the grower to have it in market at its best season for use. With me it begins to ripen about the twenty-fifth of June, and continues in use some three weeks.

We have, for some years past, raised this fruit for market at our fruit farm near Cave City, Ky., and find it the most profitable fruit we grow. It has but once, I think, in the past ten years, failed to produce a full crop of fruit.

This plum, so far as I know, has no tendency to reproduce itself from seed, and, as great numbers of trees have been raised in this way, spurious and worthless varieties, bearing the name of Wild Goose plum, may be found all over Western Tennessee, Kentucky, and perhaps, farther West.

Mushroom Culture.

A writer in the Canada Farmer says: Many persons regard the culture of mushrooms as a great mystery. But it is not so. On the contrary, it is as simple as raising a crop of corn, or cultivating a grape vine, or a bed of cabbages, and can be done in out-of-the-way places, taking up little room, and requiring little attention. Mushrooms, too, can be raised in Winter, when no other crop can be, and a regular supply had for family use. Or, if conducted on a larger scale, with a view for disposal in our city markets, there is nothing to hinder, and a most profitable thing can be made of the business. All farmers keep horses and cattle, and have plenty of manure; and it may be mentioned that the quantity used in forming mushroom beds is not lost, for it can, when new beds are made, be returned to the manure yard. It must be borne in mine, too, that there is no necessity to build a place to grow this vegetable. It can be grown almost anywhere, in an enclosed place—even in the kitchen or sitting room; but the best out of-the-way places are a close *horse-stable*, which is regarded as the best of all; mild cellars, enclosed out-houses of almost every kind, where the soil in beds can be kept from freezing.

Now, for the mode of growing: Take a box, say ten or twelve inches in depth, and as long and broad as the space will admit of or may be desired; pack it down with *six* inches of horse-droppings, on this *three* inches of dry cow-droppings, broken somewhat fine; moisten this (not wetting or deluging it) with a strong brine of nitre or saltpetre water. In this cow manure plant the spawn, which can be obtained at the best horticultural stores, in the form of a brick; break in good size pieces, say as large as a walnut and set in triangular shape, thus ***, and cover with an eighth to a quarter of an inch (not more than the latter) of fine, dry soil. Cover the whole with old carpet or any heavy cloth, *so that the light is completely excluded.* Of course it needs no sun, but just the contrary, as perfect darkness is required.

Work in the Vineyard.

After the second pinching of the fruit-bearing branches, the laterals will generally start once more, and we pinch the young growth again to one leaf, thus giving each lateral two well developed leaves. The whole course should be completed about the middle of June, here, and whatever grows afterwards may be left, unless some of the laterals should still become too long and hang over into the rows, when they may be taken off or shortened in.

Let us glance at the objects we have in view, and whether they are really reached by the practice as followed by us:

1. One of its principal objects is to keep the vine within proper bounds, so that it is at all times under the control of the vintner, without weakening its constitution by robbing it of a great amount of foliage. This we trust our readers will find is fully reached by early and thorough pinching, as the fruit-bearing branches become stocky, better able to bear up their fruits, and the tendrils cannot intertwine everything.

2. *Judicious thinning of the fruit.*—This is done most thoroughly, and at a time when no vigor has been expended in its development.

3. *Developing strong, healthy foliage.*—This object we gain by forcing the growth of the laterals, and thus having two young, healthy leaves opposite each bunch, which will shade the fruit and serve as conductors of sap to the fruit.

4. *Growing vigorous canes for next year's fruiting.* We obtain just as many as we want, and no more, thereby making them stronger; and as every part of the vine is thus accessible to light and air, the wood will ripen better and more uniform.—*Grape Culturist.*

Tent Caterpillar of the Forest.

By The Entomological Editor.

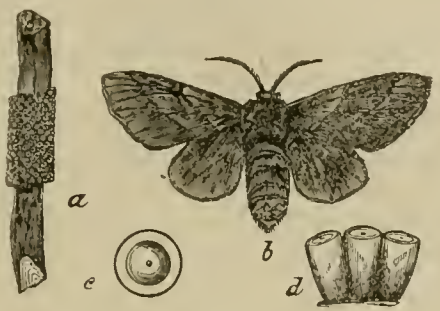
We now come to the third and last insect of the three which are so generally confounded—taken all to be the same by many of our horticultural and agricultural friends—the Tent Caterpillar of the forest (*Clisiocampa Sylvatica*, Harris), which was first described by Dr. Harris, of Massachusetts.

This insect belongs to the order Lepidoptera and family Bombycidæ, and although we have never known it to be very plentiful in Iowa, yet we have each year met a few specimens, and it may become troublesome, as we have known it to be in other States, particularly in Eastern Indiana, on two occasions; it not only defoliated forest and fruit trees in its path, which was about four miles wide, but destroyed whole fields of wheat, and did corn great damage.

In our latitude the parent moths make their appearance about the last week in June and the first week in July, and after coupling, the female, which is larger than the male, deposits her eggs in very even, regular bands on the small twigs of trees, where they remain until early next spring, when they hatch and become small, black worms (larvæ), in which state they feed ravenously on the leaves of the different kinds of forest and orchard trees generally, for about six weeks, during which time they moult—cast their skins four times and become full grown—and commence making cocoons, preparatory to becoming pupæ, which condition is arrived at three days after the cocoons are completed, when the last larvæ skin is cast. In this condition they remain for some two weeks, when they come forth *perfect imago*, some time during the last weeks in June and first weeks in July.

The Eggs.—At *a* in the engraving in this article is a twig of a tree with a nest of eggs around it of the Tent Caterpillar of the forest. It will be observed that the band is very uniform in diameter and docked off squarely at each end, not rounded as are the bands of the Tent Caterpillar of the orchard. Although there is a striking resemblance between the egg bands of the two caterpillars, yet when compared, a marked difference is readily recognized. These eggs will be found on the small limbs during fall and winter until early in the spring, when they hatch out. Each nest contains from three hundred to

four hundred eggs. Each egg is about one twenty-fifth of an inch long, and one fiftieth of an inch in diameter. They are securely glued together covered with a varnish by parent moth, which so well protects them from the heat of the summer and the inclement weather of the fall and winter. During the warm days of summer the embryos are developed into minute, yet perfect worms, (larvæ), although they remain in the egg shell until early spring. At *c* and *d* are magnified representations of the egg, showing shape and the appearance of the end, with its sunken center.



The Worms.—(*Larvæ.*)—Early in the spring the young worms hatch, frequently before leaves have put forth for them to feed upon, yet they will endure hard freezing, and live two or three weeks until food is furnished them. They are pretty general feeders, will do well on oak, walnut, hickory, plum, cherry, apple, peach and rose, but are by no means entirely confined to these for food. These worms (larvæ) spin a silken thread from the time they are hatched until after their fourth moulting, at which time they commence wandering about in search of suitable places to make cocoons, which they find under bark, in cracks of the fences, under boards, and similarly secure places. They form webbed nests on the sides of trees, and near forks of large limbs, on which they frequently congregate before their time of last moulting, but are all the time much more given to wandering about than is the case with the Tent Caterpillar of the orchard.

"The Caterpillar, as seen after it has forsaken its nest and is wandering about," says Dr. Fitch, "is an inch and a half long and 0.20 thick. It is cylindrical, and of pale blue color, tinged low down on each side with greenish gray, and is everywhere sprinkled over with black points and dots. Along its back is a row of ten or eleven oval or diamond-shaped white spots, which are similarly sprinkled with black points and dots, and are placed one on the fore part of each segment. Behind each one of these spots is a much smaller white spot, occupying the middle of each segment. The intervening space is black, which color also froms a border surrounding each of the spots, and on each side is an elevated black dot, from which arises usually four long, black hairs. The hind part of each segment is occupied by three crinkled and more or less interrupted, pale, orange-yellow lines, which are edged with black. And on each side is a continuous and somewhat broader stripe of the same yellow color, similarly edged on each of its sides with black. Lower down upon each side is a paler yellow or cream-colored stripe, the edges of which are more jagged and irregular than those of the one above it, and this stripe also is bordered with black, broadly and unevenly on its upper side, and very narrowly on its lower side. The black is clothed with numerous fine fox-colored hairs, and low down on each side are numerous coarser, whitish ones. On the under side is a large, oval, black spot on each segment except the anterior ones. The legs and prolegs are black and clothed with short, whitish hairs. The head is of a dark bluish col-

or, freckled with numerous black dots and clothed with short, blackish and fox-colored hairs. The second segment or neck is edged anteriorly with cream white, which color is more broad upon the sides. The third and fourth segments have each a large, black spot on each side. The instant it is immersed in spirits, the blue of this Caterpillar vanishes, and it becomes black."

A good representation, except the natural colors, is given of it in the engraving.

THE COCOON AND PUPÆ.—The cocoon is composed of silken threads loosely woven on the outside and intermixed with the hairs of the larvæ, more densely woven on the inside; color white, but is filled with a paste from the mouth of the larvæ, which when dry gives it the appearance of being sprinkled with sulphur. It is about 1.30 of an inch long and 0.43 wide. This cocoon contains the chrysalis (pupæ) which is of a reddish brown color, slightly dusted with pale powder, and is densely covered with short, pale, yellow hairs, which hairs are longer and darker at the blunt and rounded end.

THE MOTH.—(*Perpect Imago.*)—At *b* in the engraving is represented the Moth of the Tent Caterpillar of the forest (*Clisiocampa Sylvatica*, HARRIS,) of natural size. It measures about two inches from tip to tip of its wings. Its body is 0.90 of an inch long and 0.30 of an inch across the thorax. Color brownish-yellow or rusty-brown, with two oblique, transverse lines across the front wings. Some specimens are, however, more pale or yellow. The color between the lines on the wings is darker than on either side. This is one particular distinguishing feature in this Moth, as the space in the Tent Caterpillar of the orchard is lighter between these lines. In the Tent Caterpillar of the forest the transverse shade often extends across the lateral wings of the Moth, faintly.

Remedies.—During the winter and spring, when the trees are bare of leaves, the egg bands are easily discovered, and should never be passed by, but removed and destroyed. There are several natural foes to the Tent Caterpillar of the forest, the large GOURD BEETLE (*Colosoma Scrutator*, FABR.) and parasites belonging to the orders *Exorista* and *Pimpla* prey on them in the larvæ state, and do much to keep them in check.

COMMON TWIG BORER.--(Bostricus Bicandatus, of Say.)

BY THE ENTOMOLOGICAL EDITOR.

These insects our correspondent doubtlessly found in holes in his vines, where they had bored down the center of the small branches, about the size of a common lead pencil. They entered the vines at the axil of a bud. Two years ago we saw them in the vines of Mr. H. Dorsey, of this place, (Clarinda, Iowa,) doing the same kind of mischief. Last fall a correspondent from Yankton, Dakotah, sent us a few specimens, and complained of their disastrous work in his apple nursery trees. For years they have been known to work among the twigs of large apple trees, and hence have not until recently been regarded as very injurious, because the small twigs they usually bored were during the summer broken off without much injury to the trees, thus amounting only to summer pruners. But now that they attack grape vines and nursery stock in the body of young apple trees, we fear they are to be feared more than heretofore. In Volume two, Number eleven, of the POMOLOGIST, we published as much of their natural history as is known, and a cut, which we repeat in the margin of this article, which will serve to give the reader an idea of this insect. It is supposed that this insect breeds in the sap-wood of forest trees. Its natural habits in this respect are unknown to entomologists. The only way we know of fighting them is to cut off the infested wood and burn it and the insects together.

Moth Traps and Moth-Proof Hives.

ED. POMOLOGIST AND GARDENER. The term "moth-proof" applied to a bee-hive, is a misnomer; for it is impossible to construct a hive that will admit the bees, and exclude

the moth and miller. And a moth trap attached to a bee-hive, whatever may be the style of hive or trap, is not simply useless, but a positive nuisance. The fewer moth traps the bee-keeper has connected with his hives, the less likely he will be to lose his bees by moths. All such contrivences, even the inverted split elder, prove a harbor for both moth and millers. But the worst of all is a receptacle or drawer under a hive, separated from the combs by a wire screening. Into this drop the chips and scales of wax let fall by the bees, and form a nest exactly suited to the needs and instincts of the miller, where she can deposit her eggs without fear of molestation. And when the egg is hatched, and the young moth so desires, it can readily enter the hive through the meshes of the screening.

The best, and only reliable remedy for the moth, is a strong colony of bees. The Italians are much more successful than the blacks in resisting their ravages. In ten years' experience, I have never known a genuine and healthy colony of Italian bees to be seriously injured by moths.—W. C. Condit.

Growing the Orange from Seed.—A correspondent of *Our Home Journal*, among other observations among the orange growers of the lower Mississippi, writes that most of the orange growers with whom he conversed, give seedlings the preference, for the following reasons: Difficulty of grafting the orange, the trees are more healthy, produce larger crops, last longer, and if killed by frost will sprout from the roots and produce the same fruit as the original.

The chief argument in favor of grafted trees, are earlier bearing and larger fruit. Seedlings usually commence bearing when they are six or seven years old. Mr. Decker finds that if the tree is allowed to grow where the seed was planted it comes into bearing one year earlier than if transplanted. Two-year old trees are said to be best for transplanting. The tap-root, on low, flat lands, should be either cut off, turned to one side, or split, each half turned in different directions, the latter is considered the best. If the tap-root is allowed to reach water it dies, and in time will kill the tree. On high lands, well drained, the tap-root may be allowed to grow. M. W.

Carbolate of Lime for the Currant Worm.—In the Eastern States for many years the currant worm has been a serious drawback upon the culture of this valuable and favorite fruit. Hellebore has been used with much success; but the *Journal of Chemistry* says carbolate of lime has been found an immediate and effectual exterminator, while it is less disagreeable, less costly and perfectly safe. The method of using it is to sprinkle it over the bushes as soon as the worm makes its appearance, bringing it well in contact with the leaves, and soon the pest is destroyed. It needs but two or three applications. In this way for a few cents large quantites of currant bushes may be saved and the fruit allowed to mature, and no danger whatever being incurred. Neither the foliage nor the fruit is in any way injured by the carbolate of lime.

It will be well for our Western readers to make a note of this, for within the past four years the currant worm has occasionally made its appearance in great numbers in various parts of the West. So far as we have been able to learn, its re-appearance in the same locality has not been very regular. It seems to turn up just as it happens—here one season and there another.

Grape Syrup.—A correspondent of the *California Agriculturist* sent to the editor of that paper a keg of grape syrup, with the following note concerning its manufacture and use: "We made our first experiment last fall. The keg I send you is a sample of the result. We had no measurement, but estimated the juice at ninety and the syrup at thirty gallons. The grapes were from old vines of the common wine variety, not irrigated. They were not well ripened; there were many green ones among them. The juice was boiled in an iron kettle of about fourteen gallons capacity. We found it better to keep the scum well skimmed off, and to continue the boiling without cessation until boiled enough, of which my wife judged by taste and appearance, not by quantity. We use the syrup instead of the common syrup from the stores. To us the flavor of the former is quite superior. My wife has used it in cakes with satisfactory result. An experiment at apple butter was not satisfactory, but other experiments may give better satisfaction. One of our neighbor says that fruits boiled in grape juice until the quantity is reduced one-half, give good satisfaction, and will not spoil.

Editor's Portfolio.

Consolidation of the Pomologist and Horticulturist.

In accordance with the above arrangement, the individuality of the POMOLOGIST will cease with this number—the paper having been merged with that old and popular journal the *Horticulturist*, under the head of the WESTERN HORTICULTURIST. Though this union of the two papers does not materially change the relations between us and our old patrons and friends, we cannot permit the present opportunity to pass without an expression of thanks for their past encouragement.

Under this arrangement, the HORTICULTURIST will have an eastern and western office of publication—New York and Des Moines. We shall be connected with the paper editorially, and have charge of the business affairs of the western office. Western correspondents will communicate with us as of old. Exchauges will please change address to WESTERN HORTICULTURIST. Unexpired contracts on subscriptions and advertising will be completed, without the least inconvenience to the parties. Our old subscribers will receive six numbers of the HORTICULTURIST—commencing with July number—the pages of which are of the same style and dimensions as are those of the POMOLOGIST. At the close of the year the twelve numbers will be indexed—forming a volume no less complete when bound, than if no change in publication had occurred. A formal announcement of the union of the two papers with change will be made in the August number of the HORTICULTURIST.

The Agricultural and Horticultural Press.

BY THE CORRESPONDING EDITOR.

It is a generally conceded point among all intelligent tillers of the soil, that there is a marked difference between farming and gardening, in fact as well as in statement. There is, however, a kind of twilight attached to each, so as to make it sometimes difficult to determine where the one begins and the other ends; yet there is a noon-day to each, which makes a distinction both clear and easy. If, then, this marked distinction does exist, as all will agree it does, it would seem reasonable that the advocates of each, in its teachings to the public, should not infringe each upon the proper prerogatives of the other — common courtesy would demand this course. Public journals, therefore, assuming the title of Agricultural or Horticultural, should confine their teachings in accordance with the title by which they represent themselves to the world. It might, however, be allowable, for either to partially represent the other, where but one could be sustained. But where each can be fully represented, it is unfair and in bad taste, for each to make itself the exponent of the doctrines properly belonging to the other.

Agricultural papers, therefore, should never admit to their columns articles purely horticultural, unless, as before remarked, horticulture had no organ in any convenient distance. Nor should horticultural journals adopt such a course towards the agricultural journals, except for the same reasons above given.

While agricultural journals may, with strict propriety, urge upon farmers to plant orchards, and even flowering bushes and plants, as home adornments, yet it is not expected, nor would it be within their legitimate province to descant upon the particular varieties of the apple, the pear, the peach, or any other kind of fruit; to speak of their size, shape, color — their various times of ripening, their keeping qualities, the growth of the tree, whether it was hardy or tender. Or, in raising flowers, to point out the almost countless varieties and colors of the rose; whether they should be annuals or monthlies, with innumerable other matters belonging to the floral kingdom. These all properly belong to the horticulturalists. While on the other hand, the gardener may, with propriety, admit into his columns, articles upon the cultivation of potatoes and corn, for instance, as a garden crop, it will not be expected that he shall take in hand to treat of

these as field and commercial crops, while the cultivation of wheat, oats, rye and hay, together with the raising of horses, mules, cattle, sheep and swine, should all be left to the farmer, in the proper sense of the word.

Allen's Choice. — Early in May we were favored with specimens of this apple from Messrs. Embree and Bundy, of Springville, Iowa, with the following note:

"Friend Miller. We send a package containing samples of Allen's Choice for thy inspection and judgment as to quality, for keeping, table use, etc., as well as market. It originated in Pennsylvania, brought from there to Ohio, from Ohio to this place more than twenty years ago by Z. Hampton, who propagated and distributed it through this section. The tree has proved very hardy, productive, a strong grower and an early bearer—indeed, one of the most profitable varieties hereabouts. Such is the testimony of Mr. Hampton, son of Z., (who died some years ago), the present owner of the original trees planted by his father."

The specimens came to hand sound and plump, and were in excellent condition when cut, May 10th. It is evidently a good keeper, and is also of excellent quality for an apple of its season. Fruit below medium, flattened, slightly angular; skin deep red sprinkled with green dots; stem short, stout, set in a deep cavity, basin broad and deep; calyx closed; core small; seeds large, plump, deep brown; flesh white, tender, breaking, very juicy and of an agreeable, sub-acid flavor.

The Walbridge Apple. — In February number of the Pomologist, we acknowledged the receipt of specimens of this apple from A. L. Hatch, of Ithaca, Wis. The Walbridge may be reckoned one among the best of keepers, but to our taste lacks in one other important essential of a good apple — flavor. It has an immature taste, as if gathered from the tree before ripe, or of having been frosted, which may have been the case, for the specimens came to hand through the mail at a very cold season in winter. The tree is reputed to be very hardy, a strong grower and a good bearer — characteristics which, so far as they go, make the Walbridge a valuable sort. We would like to have another, and perhaps what might be, a fairer trial of the fruit.

Bloomless, Coreless and Seedless Apples. — When will wonders in horticulture cease! We acknowledge the receipt of apple cions from Mr. Charles Waters, of Springrill, Wis., under the above caption. We can't say that there is, or has been, or will be, such a thing under the sun, as a bloomless, coreless and seedless apple. But with all due deference to friend Waters, we must say that a squint at such a nondescript would strengthen the backbone of our faith in the thing amazingly. Will friend Waters send along specimens of the fruit next fall?

Apples From Dr. Weed. — Early in May we were placed under obligations to Dr. James Weed, of Muscatine (who has the largest apple orchard in Iowa), for a sack of apples, made up of Jonathans and two seedlings, all in first-rate condition for use. Some specimens of the Jonathan, and of one of the seedlings, are now (June tenth) in our fruit box, sound, with specimens of Ben Davis, Willow Twig and Stark. How the Doctor keeps Jonathans so long and in such fine condition, may sometime leak out through the pages of the Pomologist. One of the seedlings is a good apple and a good keeper. About the size of Allen's Choice, as described elsewhere. Without close comparison, it might be taken for Raule's Jannette — bearing a close resemblance in size, form and flesh.

Wisconsin Weeping Willow. — Ed. P. and G. I would like to have the experience of some one or more readers of the Pomologist and Gardener as to the value and hardiness of this willow. Will some one who knows about it reply to this query? — H. C. R., *Council Bluffs, Iowa.*

A Strawberry — What is It? — A year ago last spring, we received through the mail, a few strawberry plants — a half dozen or so. From whence they came, or from whom we have not yet learned. They were planted and well cared for, and have this season produced some fine large clusters of fruit.

How to Eat an Orange.—Brazil is a great country for oranges, and the Brazilians know how to eat the delicious fruit. To enjoy an orange thoroughly, says one of the newspaper correspondents in Professor Agassiz's present expedition, you should eat in Brazilian fashion: You slice a segment of the flower end deep enough to go completely through the skin; then replacing the segment, thrust a fork through it to the very center of the orange, if the tines are long enough. Holding the fork in your left hand, peel the orange with a very sharp small table knife, slicing all the skin off, the segment at the base of the fork being in this operation a shield to prevent any danger of cutting the left thumb. Now, with two cuts of the knife dissect out the pulp of one of the pockets, and convey it to the mouth. Follow this up, pocket by pocket, and the skins of the pocket remain on the fork, like the leaves of a book open until the covers touch.

Pride of Mount Hope.—The success of Mrs. Pollock, the geranium, has led hybridizers to pay great attention to this class in the hope of rivaling this variety, and the number of introductions annually is large. Strange to say that out of the whole number originated in Europe, not one has been produced which is adapted to bedding-out in this country. Two years ago we crossed Mrs. Pollock with Beauty, a robust variety, originated, we think, by Mr. Buist. From the seed we obtained a Bicolor, which promises to supply a long-felt want. The plant is of vigorous habit, as strong a grower perhaps, as any zonale. The disc, or leaf-ground is golden yellow, and the color is heightened in proportion to the heat of the sun. The zone is bronzy red, broad and well defined. The foliage is smooth, of great substance and good shape. For margins of beds, borders, and for edgings, it will prove very useful and ornamental.—*Ellwanger & Barry.*"

Apples in Minnesota. *Ed. P. & G.*:—I have a few of the following kinds of standard apples that I have had from two to four years, and they have come through the winters all right: Red Astrachan, Fameuse, Ben Davis, Haas, Colvert, Perry Russett, Red June, Red Romanite, Tallman Sweet, Wagener, Yellow Bellflower, (large red apple, name unknown,) Duchess, and six of the Minnesota Seedlings that have proven good; also Hyslops and Transcendants that are bearing; also Montreal Beauty, Soulard, and the smaller kinds of the Crabs. Of the above kinds, Red Astrachan, Ben Davis, Fameuse, Perry Russett, Haas and Duchess have blossomed. I think the followng have proved the hardiest thus far here: Haas, Colvert, Ben Davis, Fameuse, Red Astrachan, and Duchess. It now looks favorable for a good crop of Plums and all kinds of small fruits. — Mark T. Berry, *Minneapolis, Minn.*

Special Horticultural Premiums.—Arthur Bryant, Sr., of Princeton, Illinois, has offered to be given under the direction of the Bureau County Agricultural Society, a premium of $20 for the best grove of timber, not less than an acre, planted in spring of 1872; trees to be set not more than four feet apart each way; plantation to be examined and award to be made by a committee on field crops in 1873.

Also, for best collection botanical specimens, not less than forty varieties, by persons under twenty years, specimens to be correctly labelled with the common and scientific names, $5.

Grape Growing in a Room.— Last year, a member of the Stuttgart Flower Club was successful in raising grapes in his sitting room. He takes a cutting, three or four feet long, with two fruit buds at its upper end, wraps it in moss, leaving the two buds exposed, and coils it in a flower pot, which is then filled with rich loam. The plant is watered with lukewarm, never with cold water, and a little dung may be added, but not much. The flower pot is placed in a sunny position. When the grapes are formed the shoot pruned above the bunch, leaving however two leaves, to maintain the circulation of sap. —*Pacific Rural Press.*

The Irish Cup Potato. The editor of the New England Farmer says upon the whole, the "Irish Cup" — or, as it is sometimes called, the "Dover" or "Riley" — is the best potato he has ever known, and he has raised it for twenty consecutive years. No other equals it in flavor or appearance when cooked.

White vs. Colored Flowers. A correspondent of the Western Agriculturist says: "We find in every flower-garden more colored than white flowers, and yet we have far more need of the white than such a variety of the colored. For weddings and for funeral occasions they are indispensable Colored flowers are pretty, but white ones are beautiful; for instance, the stately Calla Lily, the elegant white Japonica, the charming half-blown white Moss Rose, and then our more humble friends, that cost but a few pennies and a little care — the fragrant Candytufts, Phlox, Sweet Alyssum, Clarkia, and Campanula. Mention might be made of many more that equally deserve a place, but space forbids."

Tree Pedlers and Nurserymen. — At a meeting of the Rosendale Farmers' Club Fond du Lac county, Wisconsin, Mr. Hoyt said the past year's experience with him had developed the fact that nurserymen and tree agents were like the Indian's white man, "mighty unsartin." His King of Tompkins County proved to be the Sweet Bough; the Twenty Ounce were Early Harvests, and his Westfield Seek-no-furthers were a very small Russett, which nobody had ever seen. For Fameuse, he had received an unknown early apple, almost worthless for any purpose. He had been considerably damaged by these impositions.

Hardy Apples.—B. F. Felch, of Portage county, Wisconsin, gives through the *Western Farmer*, the following varieties of the apple in the relative order of hardiness: Tetofski, Duchess, Ben Davis, Haas, Red Astrachan, Plumb's Cider, Utter, Golden Russet, Fameuse, Sweet Pear, St. Lawrence, Willow Twig. The Fameuse, Tallman Sweet, Golden Russet, Red Astrachan and Saxton are very hardy and profitable varieties when not set too far north or in a locality not too much exposed to cold. Winesap is also somewhat hardy.

Rapidly Grown Radishes.— The Acclimatization Society of Palemeo recommends the following method for rapidly growing radishes at any season: Soften the seed by soaking in water for twenty-four hours; put in small sacks and expose to the sun; when the seed has sprouted (in twenty-four hours) sow in a box filled with well-manured earth, and moisten from time to time with lukewarm water. In five or six days the roots will have attained the size of a small onion. In winter the box is placed in the cellar, covered over, and daily moistened with lukewarm water.

Ed. P. & G.—*Those frosted Cherry buds.*—In the January number, page 4, H. A. Terry gives the result of the frost on his cherry buds, and wants the "Doctors" to explain this "killing business." Perhaps had he closely examined the outer scale of said buds, he would have found some more woolly on their inner surface, or more highly varnished externally, and this difference might make the "odds" more even. Before any question can be fairly answered, we need all the data, on which to predicate an opinion.—J. S., *Lancaster, Pa.*

Figs for Pork.—The California Horticulturist says: "On most of the older farms of the State, and in the yards and gardens of many private residences, fig trees are found, where the climatic conditions are favorable. The fruit is rarely preserved, but is suffered to fall to the ground and go to waste. A gentleman in one of the Southern counties has discovered that it is excellent food for fattening swine, and is about to set out a large fig-tree orchard and devote the fruit especially to this object. A hint may be taken from his experience.

Lawrence Pear in Illinois. — At the recent meeting of the Northern Illinois Horticultural Society at Princeton, Robert Douglass said the Lawrence pear was healthy, hardy, a moderate grower, and even bearer, the fruit ripening perfectly. The Bartlett, Flemish Beauty, Howell, Buerre Bosc, Easter Buerre and Anjou were also recommended by experienced members of the society.

Apricots and Cherries.—Ripe apricots and cherries made their appearance in the San Francisco market on the twenty-fifth of May. The former sold at fifty cents per pound, and the latter for seventy-five cents.

Frost in California. According to reports from our California exchanges, the late spring frosts appear to have done much damage to fruit. From the Pacific Rural Press of May 19 we learn that throughout almost all California, or from San Diego to Chasta, with the exception of a few isolated districts here and there, blighting late spring frosts have occurred, which in many places materially injured the young growth of the grape vine, and in many places, also, the stone fruits have been more or less destroyed.

Treatment of House Plants. — Ladies who cultivate flowers in the house will find great benefit to the plants by spreading moss over the earth in flower-pots. This keeps the water from evaporating and the temperature more uniform. Tea-grounds are often used for the same purpose. Where a flower-pot sets in a saucer, with a hole in the bottom of the pot, put a little sand in the saucer, and cover it with moss, and you have a simple and admirable arrangement. — *Cal. Horticulturist.*

New York State Grape Growers' Association. — The following are the officers of this association for the current year: President — J. H. Babcock, Lockport; Vice-Presidents — C. L. Hoag, Lockport; Dr. F. B. Seeley, Vine Valley; G. W. Nichols, Hammondsport; Dr. D. W. Burge, Peach Orchard; Dr. H. H. Farley, Union Springs. Corresponding Secretary — T. S. Hubbard, Fredonia. Recording Secretary — G. F. Wilcox, Rochester. Treasurer — M. D. Munger, Canandaigua.

Cut Worms. We have in no previous season heard so wide-spread complaints of the ravages of this pest of the garden and field as the present spring, though we have not seen much of their depredations in our own grounds. Various methods are recommended for destroying them. We see it recommended to place chips or boards about upon the ground infested, under which they seek shelter, and where they may be found early in the morning and disposed of.

Failure of the Peach Crop South. — A correspondent of *Our Home Journal* writing from Summit, Miss., writes that such a failure of the peach crop in the South has not occurred before for the last twenty years. On examination the fruit is found to have been punctured by some kind of insect. From these punctures the gum oozes out, and on cutting open the fruit, a small white grub is found, the larger part of which is the head.

The Finley Pear. — J. C. Neff, Duncan's Falls, Ohio, writes us about a pear tree in his neighborhood under this name, now sixty years old. Has known the tree, and eaten fruit from it from time to time for the last thirty-six years. Fruit in form much like the Bartlett but larger and ripens in August. Standard trees made from its cions come into bearing in five years from the bud or graft.

Preferences of Climbing Plants. — According to Mr. Henry, certain climbers evince a partiality for some particular species of plants, stretching out their tendrils and branches so as to come in contact with them, while to other species they have as decided an aversion, avoiding them and never becoming attached to them, though they run up the surface of the wall side by side.

The Florida Orange Crop.—The Pilatka *Herald* of a late date says: "Orange groves on the river are in a flourishing condition. Never was there a better prospect for a large crop. The young groves just coming on are very promising. Some twigs, or young plants, not more than three feet high, are in bloom, and freighted with small oranges, not larger than a marble."

Grape Syrup and Sugar. The Santa Clara (Cal.) Grape Growers Association, among other premiums, offer $20 for the best sample of grape syrup, not less than one gallon and $20 for the best five pounds of grape sugar. The articles must be accompanied by statements of the manner of making, in full, and the variety of grapes used.

Plants in the School Room. There are more than two hundred plants in one of the school houses in Springfield, Mass. Scarcely a window in the building but has its rows of plants; pictures adorn the walls, and all the appliances for making the rooms pleasant, and and a sojourn in them profitable, abound.

The White Delaware Grape.—Geo. W. Campbell, of Ohio, has our thanks for a plant of his White Delaware. It is making a fine growth and we hope in the course of human events to eat of its fruit. We believe Mr. Campbell has not as yet placed the vines on sale—preferring to first have the fruit tried in different localities.

The Cabbage Flea.—A correspondent of the *Western Farmer* has discovered, while fighting the Colorado potato bug, that Paris Green is death on the cabbage flea. It may be mixed with plaster or flour—one part of the Green to about twenty-five of plaster, and the plants dusted when wet with dew.

Grape Vine Borer. We learn that a small bug is doing considerable damage to grape vines in and about Knoxville. It bores in near the joints and destroys a portion of the wood and the pith. We should be glad to hear from other localities in reference to this bug.

In Connecticut a worn out field was, fifty years ago, planted in timber. The field has yielded ten cords per year, and fencing for the farm for twenty years past, and last year when cleared, produced fifty cords per acre.

Books, Periodicals, Catalogues, etc.

Barry's Fruit Garden, by P. Barry; Orange Judd & Co., New York, Publishers. Price $1.50.—We have in hand a copy of a new and enlarged edition of this book. Mr. Barry's well known reputation as a fruit grower and nurseryman of some thirty-five years' standing, together with his ability as a writer, guarantee in this new edition of the "Fruit Garden," a volume of no ordinary worth to every fruit grower. Its composition is plain and straightforward, and its subject matter made doubly familiar by a free use of truthful illustrations. In this connection the following from the *Gardener's Monthly* is right to the point:

"And now a few words about 'The Fruit Garden' itself. Its chief characteristics are its clearness and its minuteness in the details of culture. In no work that we know of is so much told which the learner may want to know. No one, perhaps, can so well appreciate this public want as a nurseryman. He is the focus of all sorts of questions from those whom he deals with. To many, so much attention to detail would seem needless; but the nurseryman knows better, and Mr. Barry has taken advantage of his commercial position to give to the public just what the novice will most want to know, as well as that which interest those well advanced in the fruit-grower's art. He has resigned to other pens the more descriptive parts. His lists embrace only the most popular kinds, and such that are pretty sure to be in a general request. In this way his work has come into no competition with those of our best authors, but rather makes one of a complete series of American fruit works."

Report of the Commissioner of Agriculture on the Diseases of Cattle in the United States.—We have received from the Commissioner of Agriculture, the above work. It is a quarto volume of about two hundred pages, gotten up and illustrated in very fine style: gives the result of investigations, made by Prof. Gamgee, by authority of Congress, relative to the "Splenic Fever," or "Texas Cattle Disease," which prevailed four years since in several of our Western States; also investigations of the pleur-pneumonia which prevailed so extensively in the Eastern States at the same time, and much other information relative to the diseases of cattle. Interest and value are added to these reports by the use of colored illustrations of diseased lungs and other organs of the body.

Transactions of the Massachusetts Horticultural Society.—Edward W. Bushnell, Corresponding Secretary, favors us with a copy of this work for 1871. Prominent among its contents appears a very able report of the committee on fruits, by the chairman, Robert Manning. This is probably the most prosperous and wealthy horticultural society on either side of the Atlantic. It has a membership of over one thousand. Its annual disbursements, on premiums, exclusive of medals, is nearly $4,000. The treasurer's report for the year shows a total of property, real and personal, of $266,285. The aggregate of receipts and expenditures for the year 1871, $48,932.

TRANSACTIONS OF THE AMERICAN POMOLOGICAL SOCIETY.—We have in hand the proceedings of the thirteenth biennial session of the American Pomological Society. This volume differs in form from former ones — being a quarto, for the better arrangement of its tabular matter. It is embellished with a fine life-like steel plate portrait of the President of the Society, Hon. Marshall P. Wilder, while the typography of the work is faultless. Prominent among its contents is the able address of the President. It also includes a complete revision of the fruit catalogue, admirably arranged in tabular form, showing at a glance where each is most successfully grown in most of the States; reports of the several committees, special reports from individuals, list of members, discussions and other details of the meeting held at Richmond, Virginia, September last. This volume is one of great interest to all who would be wise in pomological lore. Its distribution is limited to members of the Society. The biennial membership fee is $4. Address Thos. P. James, Treasurer, Cambridge Mass.

THE MODEL POTATO.—AN EXPOSITION OF ITS PROPER CULTIVATION; THE CAUSE OF ITS ROTTING; THE REMEDY THEREFOR; ITS RENEWAL, PRESERVATION, PRODUCTIVENESS AND COOKING. BY DR. JOHN MCLAURIN. PRICE, FIFTY CENTS. S. R. WELLS, PUBLISHER, 389 BROADWAY, NEW YORK. This is a little work of about one hundred pages, upon a subject in which every farmer and gardener is interested. Says the author, "Here are new views on the subject of potato culture and a plan to prevent its rotting and running out." The book is well worth the money to any farmer, though we must confess a doubt as to the tenability of some of the author's "views."

AMERICAN MANURES AND FARMERS' GUIDE.—A volume of some 250 pages, comprising a description of the elements and composition of plants and soils, the value of stable manure, chemical analysis of manufactured manures, their assumed ane real value, the theory and practice of composting, frauds practiced upon purchasers, etc. We have looked through this work with no ordinary interest, and find it a book that every farmer may read with profit. It may be obtained by mail for $1.50. Address William H. Bruckner Monroe, Michigan.

TRANSACTIONS OF THE WISCONSIN STATE HORTICULTURAL SOCIETY FOR 1871.—We are under obligations to some good friend, Secretary Willey, we suppose, for a copy of this work. We find it a handsome, well compiled volume of some two hundred pages. Aside from the ordinary doings of the society for the year, it contains many papers of interest and value upon horticultural topics.

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